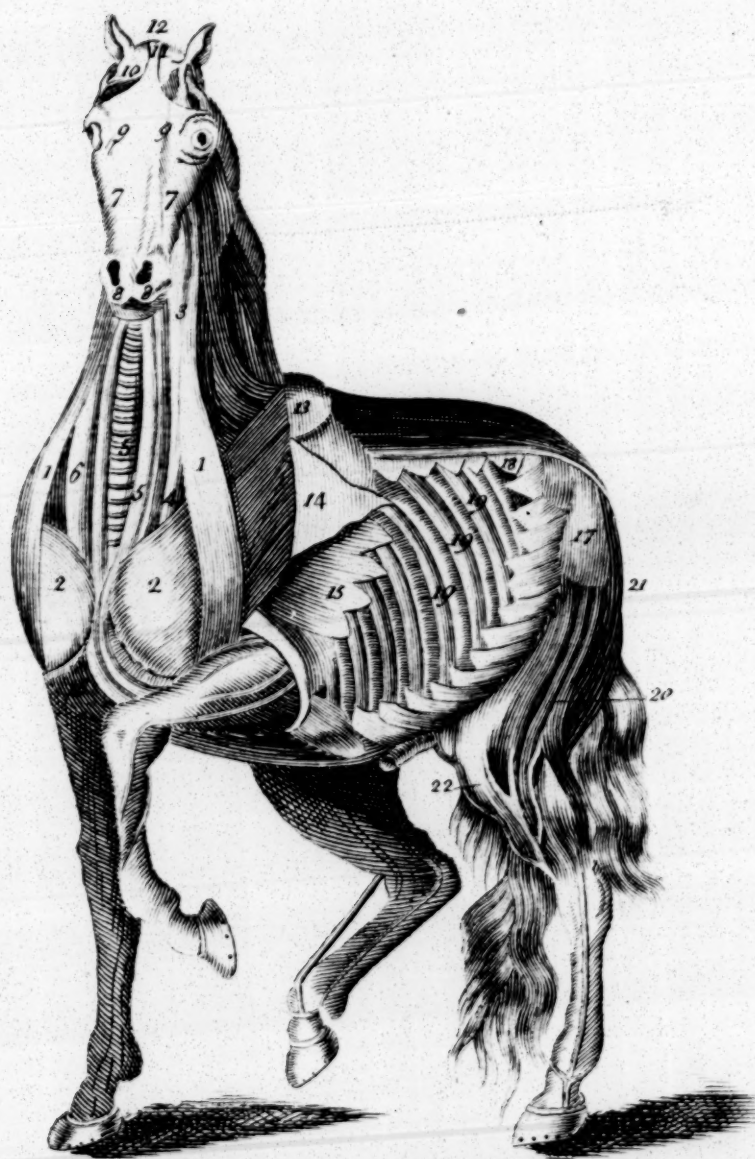


FRONTISPIECE,



A full View of all the Muscles that appear on the Front of the fore parts; the Skin being laid back. (See table 1.)

T H E
CLASSICAL FARRIER.

EXHIBITING THE WHOLE

A N A T O M Y

OF THAT NOBLE ANIMAL THE

H O R S E.

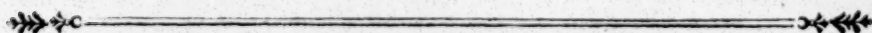
PERFECTLY DESCRIBING, BY
ELEGANT ENGRAVINGS ON COPPER-PLATES,
THE VARIOUS PARTS OF THE HEAD, BODY, AND LIMBS,
BOTH EXTERNAL AND INTERNAL.

TOGETHER WITH
THE SIGNS, CAUSES, AND TRUE
*METHODS OF CURING EVERY DISEASE
INCIDENT TO HORSES.*

IN THE APPENDIX ARE
GENERAL RULES FOR THE
PROPER MANAGEMENT OF RUNNING-HORSES, &c.

ENTIRELY BY
AN IMPROVED AND EXPERIENCED MODE OF PRACTICE.

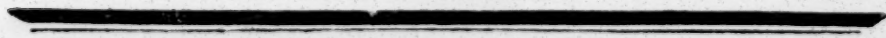
TO WHICH IS ADDED,
A COPIOUS INDEX OF DISEASES AND THEIR REMEDIES.



BY WILLIAM MERRICK, FARRIER,
OF SWALLOW-STREET, ST. JAMES'S.

T H E S E C O N D E D I T I O N .

I N S C R I B E D T O
NOBLEMEN, GENTLEMEN, AND EVERY PERSON CONCERNED
IN HORSES.

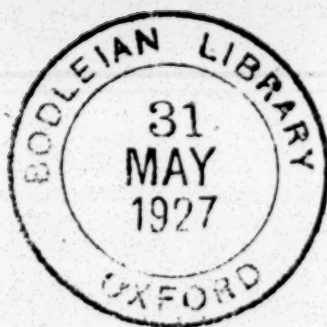


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MDCCLXXXIX.



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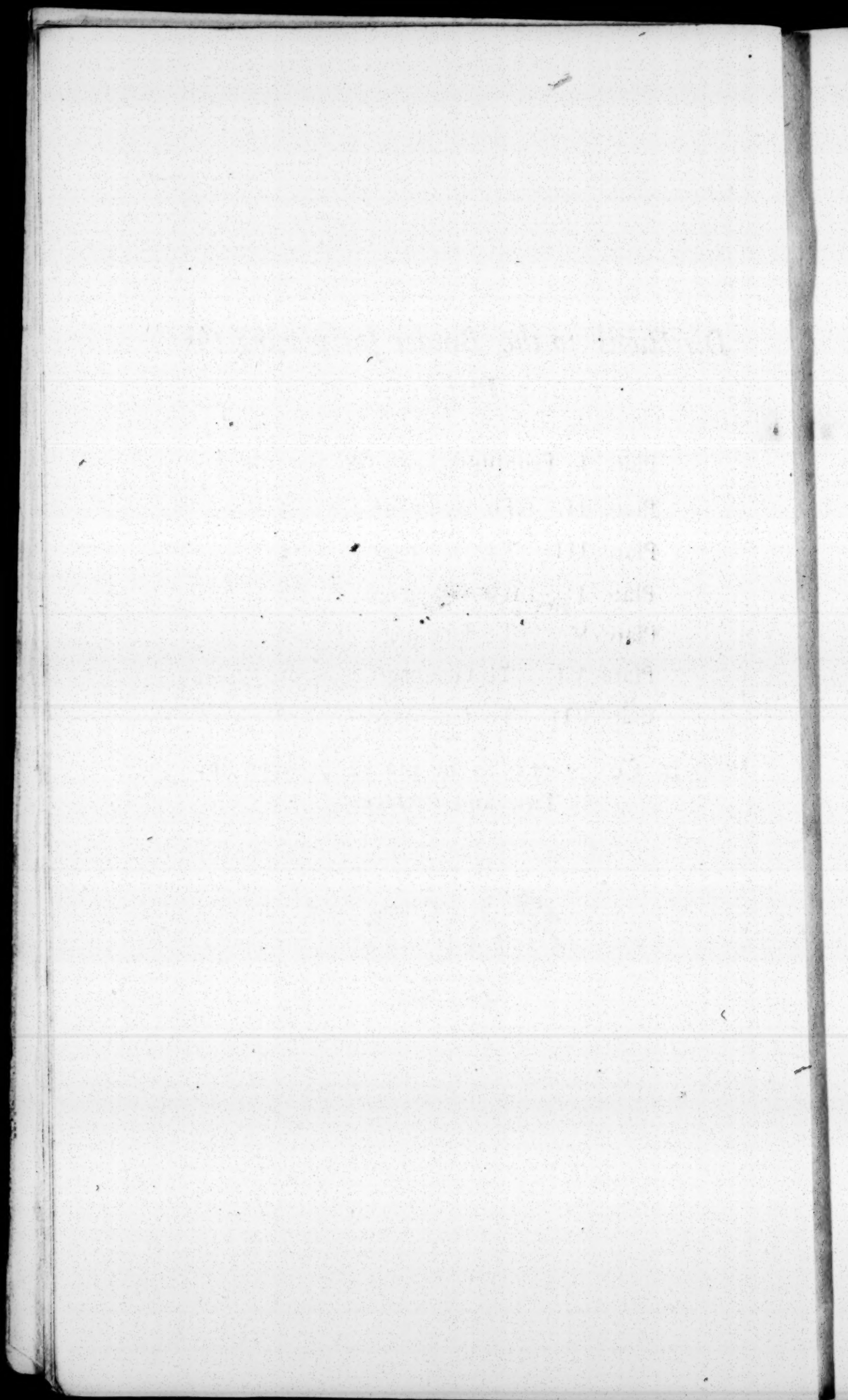
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CLASSICAL

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P R E F A C E.

TH E extensive Purposes of pleasurable and profitable Service, to which we adapt that noble Animal the Horse, most powerfully interest us in the Preservation of the Species.

Yet an improvident Waste of Property, in the Barbarity of promiscuous Destruction, the hourly Complaint of Prudence and Humanity, are, in Fact, equally true and monstrous.

Some Part of it is undoubtedly imputable to Neglect and Brutality of inferior Servants, with whom the Master occasionally intrusts: But it is mostly the Effect of ignorant Presumption in those who undertake to restore this valuable Animal, when under the

Pressure of Infirmary or accidental Calamity; or, in other Words, of those who undertake the Practice of Horse-Medicine. These Men disgrace that rare Character, a Surgeon-Farrier; and under the assumed Appellation of vulgar Dignity, an Horse-Doctor, tax Owners without Conscience, deal Destruction without Remorse, and prove, in Reality, so many Executioners.

Those who have found it their Interest to take the best Information, affirm this positively: We can declare it on the most extensive Observation. Were there not something ludicrous in the Expression, we are sure a general Bill of Horse-Mortality would warrant our Assertion, and prove that they most die in their very prime, with the Stamina of Life in Perfection, and with every constitutional Advantage in Favour of judicious Farriery.

Such being the Case, any candid Reasoner, having the Preservation of
the

the Species for the Object of a mere Enquiry, might submit his Thoughts, secure of an attentive if not profitable Perusal; not that we are without Authors, who have professionally written on the Art of preserving Horses, by the Practice of Horse-Medicine or Farriery; and who have had a Name in their Day, although they are now generally in Disrepute, and out of all Use.

The Truth is, that rational general Principles have systematised this Art; yet, as the Judgement must apply and modify to each various Case of Practice, and that must be directed by Experience, it is urged, that every additional Experiment improves the Art; and that we of To-day, are just so much more enlightened than our immediate Predecessors.

This Argument constitutes at once that Apology and complete Justification, which Deference to the Public requires
from

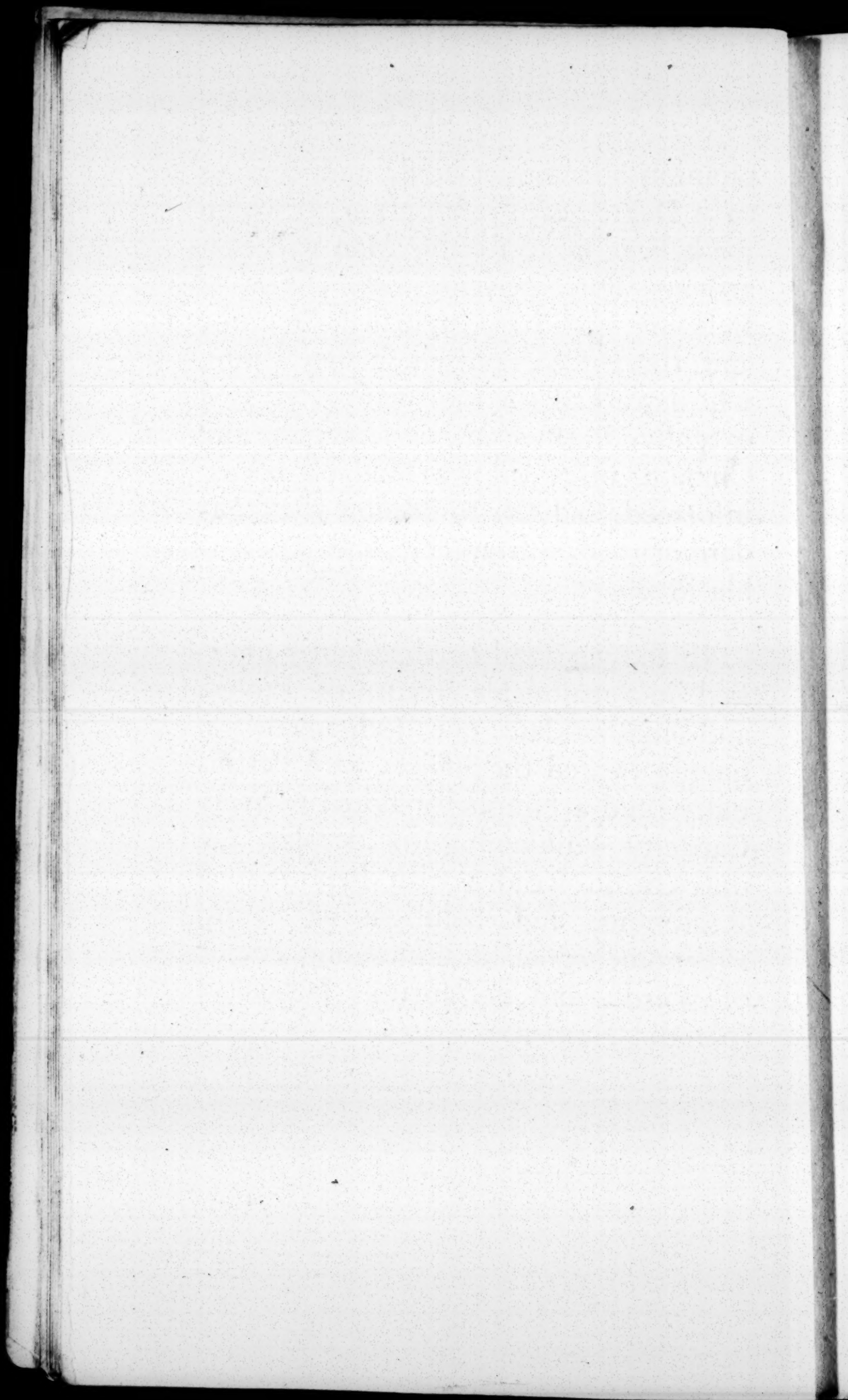
from those who are about presenting themselves Candidates for its Patronage and Favour, though their Design be to instruct, with a View to preserve, and the Execution should prove equal to the Design. We therefore sit down to pen a compendious Treatise on Horse-Medicine and Anatomy; and shall endeavour to comprize, in as few Sheets as possible, every Thing which is really useful.

We shall make little Preliminaries with our Readers in two or three introductory Sections, in order to our right understanding one another; and then proceed to arrange the Maladies to which this Animal is liable, and the Remedies to be prescribed, under proper Heads; allotting to the Disease and its Cure one separate and entire Section; and carrying the Whole up to the last Stage, or Line of experimental Improvement on so useful a Creature.

To arrogate Perfection to any Production, would be to contradict our own
Opinion

Opinion already declared, and amount to a Degree of Presumption, at which we believe no reasonable Man will ever arrive.—But, perhaps, the System of Persons who have practised Anatomy and the Diseases on which they write, who have had the most variegated and extensive Practice in every Latitude and Climate, may, till we shall be better informed, bid fair to become the Standard of good, warrantable, and approvable Practice.

If so, we shall be abundantly gratified in a reasonable Return of Profit; and congratulate our Judgement on having treated the Subject with Perspicuity, and a Simplicity suited to every Capacity;—disdaining to perplex the unscientific Reader with hypothetical Reasoning, and Solutions of absurd Phænomena, in an unmeaning Parade of Words, and declamatory Jargon of splendid Nonsense.



I N T R O D U C T I O N.

WE shall first define the Mode whereby the animal Body is nourished, and rendered fit to perform the several Functions of Life.

As soon as an Animal gathers in his Food, the Glands of the Mouth pour forth their Liquor, not only that it may be the more easily chewed, but that it may be thereby rendered soft, and more readily pass through the Gullet into the Stomach. When it has arrived there, several Instruments become useful to assist Digestion. The Juices which flow from the Glands of the Stomach, and the Drink, help to keep it moist; so that by the continual Action of its Sides, which, by virtue of its muscular Fibres, perpetually rub one against another, and by the Assistance of the inclosed Air, all the Parts and Particles of the Food are greatly separated. The grosser Parts are carried downwards by the peristaltic Motion of the Guts, the Pressure of the Midriff and Muscles of the lower Belly,

C and

x INTRODUCTION.

and are voided at the Fundament, while the finer Parts constitute that white milky Substance which we call Chyle.

The Chyle being thus prepared in the Stomach, passes by Degrees out at its lower Orifice into the smaller Guts, and is, by the same Powers, squeezed into the small and minute Orifices of the lacteal or milky Veins, which arise from all Parts of the said Guts, by fine capillary or hair-like Tubes. And although these Tubes are so small that they cannot be perceived but in Animals opened alive immediately after eating, at which Time they are full of Chyle, yet every one of them imbibes and drinks up Part of the refined Aliment ; and as they run from the Sides of the Guts to the Glands in the Mesentery, they unite and form larger Branches, and are called the lacteal Vessels of the first Kind. These Extremities of the Lacteals having Communication with the small capillary Arteries of the Guts, receive a thin Lympha, which not only dilutes the Chyle and helps to drive it forwards, but also washes the Lacteals and Kernels, that they may not sur and be stopped up by its staying in them upon fasting.

There

There are other Laeteals which are larger, and are called *Venæ Laeteæ Secundi Generis*, or the Laeteals of the second Kind : These receive the Chyle that was discharged by the first into the vesicular Kernels of the Mesentery, and carry it immediately into its common Receptacle.

The Lymphatics, which arise from most of the Intestines of the lower Belly, and from the lower extreme Parts, empty their Liquor into that Receptacle, which, being mixed with it, makes its Parts still more fine and fit to be united with the Blood ; and as the Chyle leaves its Receptacle, and ascends the thoracic Duct, and those which come from the Head, Neck, and Arms, discharge their Contents into the jugular and subclavian Veins, by which it becomes yet more diluted and perfect as it enters into the Mass of Blood.

The Laeteals and thoracic Duct have Valves which open for the Passage of the Chyle, but shut themselves so as to hinder its Return back again ; and the thoracic Duct being placed behind the great Artery, receives a new Impetus by its Pulsation, which also forwards the Ascent of the Chyle. The Lymph-Ducts contract themselves at unequal Distances, and have also their little Flood-Gates, which

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permit

permit their Liquor to take its Course towards the Chyle-Vessels, but hinder its coming back the same Way; by all which Means the animal Body can never be deprived of its Nourishment, but in case of Sickneſs or Want.

The Chyle being prepared in the Stomach and ſmall Guts, as has been obſerved, and being alſo farther refined by the Commixture of the Lympha in its Paſſage through the Lacteals and thoracic Duſt, is conveyed by that Canal to the left ſubclavian Vein, where it opens itſelf at ſeveral Orifices, and mixing with the Blood, is carried directly to the right Ventricle of the Heart, and is no farther to be traced under the Name of Chyle, but henceforth becomes a Part of the Blood.

Now that all the Blood takes a circular Courſe through the Heart, is an Opinion ſo generally received, that we need ſay nothing about it, but proceed to ſhew the Way and Manner by which that is performed.

The aſcending and deſcending Trunks of the Cava unite oppoſite the Heart, and open into its right Auricle, or Ear; and at that Place where they enter, there is a ſmall Protuberance made by their Coats on the Inſide, like an Iſthmus, which hinders the Blood of either
Trunk

Trunk from rushing against the other, but directs both into the Ear. The right Ear receives in its Diastole, that is, when it is distended, all the Blood from both Branches of the Cava, which it empties by its Systole into the right Ventricle of the Heart, which at the same Time is in its Diastole. The right Ventricle in its Systole presently empties itself into the pulmonary Artery, or that of the Lungs, for it cannot return again into the Ear, because of the *Valvulae Tricuspidæ*, as that which is once received into the Ear, cannot return into the Cava, because of the tendinous Circle about its Mouth, which contracts itself as often as the Ear is filled. As soon as the Blood has taken its Progress through all Parts of the Lungs in the pulmonary Artery, it is received from its capillary Branches into those of the pulmonary Vein, and is conveyed by it back again into the left Ear of the Heart, which, by its Contraction, thrusts the Blood into the left Ventricle, then in its Diastole, and when that is contracted, it is thrust out into the Aorta; for it cannot come back again into the Ear, because of the *Valvulae Mitralæ*.

The Aorta having received the Blood from the left Ventricle, sends out two small Branches called the *Coronariæ*, which go to the Heart, and then forming a small Arch, by which the
Force

Force of the Blood is somewhat abated, in its Expulsion it is divided into the Aorta ascending and descending.

The ascending Trunk climbing up by the Wind-Pipe to the Top of the Breast, sends forth two Branches, called the Subclavian, which run under the Channel-Bones on each Side. These send forth several other Branches, both from their upper and under Side: From their upper Side spring those Arteries, which, in Men, are called the Cervical, being partly spent on the Muscles of the Neck and Breast, and partly on the Glandulæ Thyroides. Out of their lower Side proceed the superior Inter-costals, which passing through the Chest, send forth several Branches to the Arms in human Bodies, and to the Fore-Legs in brute Creatures.

Where the Subclavians go off from the great Artery, on each Side there arise two other principal Branches, which ascend upwards towards the Head, and are called the carotid Arteries: These are spent chiefly on the Brain, forming there the Rete Mirabile, and Plexus Choroides, &c. but as they ascend, they detach several Branches to the Wind-Pipe, Larynx, some to the Tongue and lower Jaw, and others to the external Parts of the Head. By these four principal Branches, to wit, the Subclavian

Subclavian and Carotids, the whole Head and Neck, as also the external Parts of the Chest and Fore-Legs, are supplied with Nourishment.

The descending Aorta, as it goes down towards the Midriff, sends forth the inferior Intercostals and the bronchial Artery, which accompany the Branches of the Wind-Pipe in the Lungs; and when it arrives at the Midriff, it detaches those called the phrenic Arteries, which are dispersed through the Midriff and Mediastinum. After it has passed through the Midriff, it marches downwards as far as the last Vertebra of the Loins, but by the Way sends off several Branches to the Stomach and other Intestines, as the cæliac, the splenic, and the upper mesenteric; after these spring forth the emulgent Arteries, one on each Side, which go to the Kidneys; and below these, from the main Trunk, also arise the Spermaties, which go to the Testicles and Ovaria, &c. then the lower Mesenterics, communicating with the upper, supply the whole Mesentery.

As soon as the Trunk of the great Artery has reached the Top of the Os Sacrum, it divides itself into two equal Branches, called the Iliacs, which are again subdivided into the external and internal. From the internal proceed

ceed those called Musculæ, which are bestowed on the Psoas and Muscles of the Buttocks ; as also the Hypogastrics, which run to the streight Gut, the Matrix and Bladder, the Prostates and Yard, and to all the other Parts contained within the Pelvis. From the external Iliacs arise first the epigastric Arteries, which turning forwards, creep along the Outside of the Rim of the Belly as far as the Navel, where they meet the Mammary. The next are those called the Pudenda, which go to the Privities of both Sexes. Afterwards the iliac Branches go to the Thighs, and are then called the crural Arteries, supplying the Hind-Legs and Feet with many considerable Branches.

This is the Order and Distribution of the principal Arteries of almost all Animals, each of which Arteries are subdivided into others, and these again into others, till at last the whole Body is overspread with most minute capillary or hair-like Arteries, which frequently communicate one with another ; so that when any small Artery is obstructed, the Blood is brought by the communicating Branches to the Parts below the Obstruction, which must otherwise have been deprived of its Nourishment. Nature has observed the same Œconomy in the Distribution of the Veins, that in
case

INTRODUCTION. xvii

case any Vein should be obstructed, the Blood might not stagnate, but be also returned by other communicating Branches.

But before we proceed to an Account of the Veins, we shall observe farther concerning the Arteries, that as it is their peculiar Province to carry the Blood from the Heart, and distribute it into all Parts of the Body, they are perfectly fitted for that Purpose by their Structure : For an Artery being composed of three Coats, the middlemost very strong, and endued with Elasticity by Virtue of the spiral Direction of its Fibres, it is thereby enabled to bear the frequent Sallies of the Blood in its Expulsion from the Heart ; and lest these Fibres should separate upon any violent Impulse, the innermost Coat, though a fine transparent Membrane, yet it is wove so close as to be able to preserve the middlemost, and keep the Blood within its proper Channels.

It is moreover to be observed, as the Arteries are conical Channels, and grow gradually smaller, so their Coats grow proportionably thinner. And the Coats of the Veins seem, according to the Opinion of most modern Anatomists, to be only a Continuation of the Coats of the capillary Arteries reflected back again towards the Heart. But although the Coats of

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the Veins be the same with those of the Arteries, yet it is to be taken Notice of, that the muscular Coat of all the Veins are as thin as in the capillary Arteries; the Pressure of the Blood against the Sides of the Veins being much weaker than that against the Sides of the Arteries, and therefore not requiring its Channels to be so thick and strong.

The Veins are not endued with Pulsation, as the Arteries, because the Blood falls into them with a continued Stream from the capillary Arteries, which, by reason of their Smallness, have only a very weak, or scarcely any Motion; and then as it advances towards the Heart, it moves from a narrow Channel to a wider; and therefore its Motion would have been extremely languid and slow, had not Nature contrived several Helps to promote its Passage. For that Reason, as it is the Office of the Veins to return and carry back all the Blood to the Heart, there is to be seen in most of them (especially in such as have their Direction upwards) several Valves at convenient Distances, sometimes one, and sometimes more, like so many half Thimbles stuck to their Side, with their Mouths towards the Heart; and as the Blood moves that Way, they are pressed close to the Sides of the Vein; but if it should fall back, it must fill the Valves, and stop up the Channel

nel that no Blood can repafs them. And befides thefe Valves, it is alfo obfervable that in many Places where there is a Branch of a Vein, there is an Artery lies under it, which, by its continual Pulfation, helps to forward the venal Blood towards the Heart; fo that although the Blood moves from a narrow Channel into a wider, as has been obferved, and its Motion is in many Places directly upwards, yet nothing can happen in a natural Way to retard its Progreffs.

But we fhall detain the Reader no longer with the Difference between the Veins and Arteries, believing what has been already faid, fufficient to give any one a Notion of their feveral Offices; we fhall therefore proceed to give fome Account of the Order and Diftribution of the Veins, as they correfpond with the Arteries.

As the great Artery receives the Blood from the Heart, and diftributes it from thence into all Parts of the Body, fo the Cava, like a main River, receives into it the Blood which is conveyed from all Parts of the Body, proceeding at firft from Veffels infinitely fmall, and afterwards uniting in large Branches, which empty themfelves into its fuperior and inferior Trunks, at proper and convenient Difances.

The superior or descending Cava, receives first the coronary Vein from the Heart, near that Place where it opens into the Ear. As soon as it pierces the Pericardium, it receives the *Venæ sine pari*, which is made by the Union of the Veins of the Ribs on each Side.

The subclavian and jugular Veins are pretty large Vessels, which answer to the subclavian and carotid Arteries, and are the next of any Note that open into the descending Cava. The Jugulars are divided into the external and internal; the external is that large Vein which runs along the Outside of the Neck, called in a Horse the Neck-Vein, and is most commonly opened when Bleeding is required. This Vein receives and carries back that Portion of the Blood which comes from all the external Parts of the Head and Face, viz. from the Eye-Veins, the Temple-Veins, and those of the Nose and Lips. Into the internal Jugulars open all those Veins which lie within the Bars of the Mouth, and under the Tongue, and all the other Branches which communicate with those of the Brain.

The subclavian Veins, viz. the two large Branches which pass under the Channel-Bones, not only receive a great Part of the Blood which comes from the Chest, but likewise have all those

those Veins open into them which run along the outward Part of the Breast, Fore-Legs, and Feet, such as the Breast-Veins that run between the Fore-Legs, which Farriers sometimes open in Fevers, &c. the Plate-Veins, the Shank-Veins, and Shackle-Veins, as also the Veins of the Cornet and Toe, which are usefully opened in Diseases of the Legs and Feet.

The Cava ascendens, or the great ascending Vein, which answers to the great descending Artery, receives also all those Branches of Veins which return the Blood from most Parts of the lower Belly, viz. the Mesenteria from the Mesentery, the Portæ from the Liver, the Emulgents from the Kidneys, the spermatic Veins from the Parts of Generation in both Sexes. And after it divides itself, as the Artery, into the external and internal Iliacs, it receives several Branches. Into the internal, open the Hypogastrics, by which the Blood is returned from the Matrix, the Bladder, and straight Gut; and into the external open the Epigastrics, with Blood from the Peritonæum, and the external Parts of the lower Belly; and into the Epigastrics open the Crurals, which receive all the Blood that flows from the extreme Parts; for into them open those Veins, improperly called by Farriers the Kidney-Veins; as also the Spavin-Veins, the Flank
and

and Spur-Veins, with that of the Rump, called the Tail-Vein.

These Things being premised, it will be easy for any one to form an Idea of the Distribution of the Blood into all Parts of the Body ; especially if it be farther considered that the Vessels in which the Blood flows, are divided and subdivided into an infinite Number of Branches ; and that even all the Parts of the Body, whether those that are hard, or those that are denominated soft Parts, seem to be no other than so many infinitely-small Tubes variously modified and combined together ; by which Means the whole Body is filled with Blood and other nutritious Juices, and receives its Nourishment from Blood, as that is recruited and repaired by the Aliment. Hence the Necessity of constant Supplies of Food and Rest, to compensate the continual Discharge by insensible Perspiration and other Evacuations.

But this will appear still more evident, when we consider, besides the Effluvia that go off insensibly in this manner, through the Pores and Interstices of the Body, that most of the Glands are continually separating some Part of the excrementitious Matter from the Blood ; though all that is discharged by the Mouth and Nose, by Urine and Dung, and by Sweat, or any other sensible Way whatsoever, does not near amount to the Discharge that is made through
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the Pores by insensible Transpiration. This is so palpable a Truth, and has been so well proved by the Experiments we have made, that there need be nothing farther said about it. And therefore we may conclude, that since the Bodies of all Animals are thus compounded and made up of Matter which is full of Pores and Interstices, and maintained by Juices which are again capable of being dissipated and wasted through those Pores, there must be continual Supplies of Food to maintain those Bodies in an uniform State.

Now it is plain that all Bodies suffer a Dissipation and Waste, if the Quantity of the Aliment be abated: For in such a Case, we observe any Creature grow lean and emaciate. It is also evident that all such suffer by Exercise, by hard Labour, by Want of Rest, when it is the stated Time of Sleep; and by many other Ways not necessary to be mentioned. And therefore all Creatures are under an indispensable Necessity both of feeding and taking suitable Rest, to make up for the Waste and Decays of Nature; for as often as there is a great Dissipation by Labour, or by any other Way, the small Fibrillæ are thereby abraded and wore, by the quick Motion the Blood and Spirits were in during that Exercise; or even if the Body was not in Exercise, it will suffer by the constant Activity of the Spirits themselves; so that a stated Time of Rest must also be necessary
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xxiv INTRODUCTION.

for all Bodies, as well as Food : For when the Body is at rest, the Spirits are, as it were, lulled and laid asleep ; so that the Blood acquires, during that Time, a more uniform and gentle Motion, and is more equally distributed into all Parts, and thereby fills up all the vacant Spaces that are made during the Time of Exercise, &c.

We shall only observe farther, that Blood, examined chemically, is found to consist only of the following Principles, viz. Volatile Salt and Spirit, some Phlegm and Sulphur, and a little Earth, but little or no fixed Salt. Now every one who is the least acquainted with Chemistry, must be sensible how many different Sorts of Liquors may be formed out of a few Principles variously combined together ; so that, although the Blood simply consists only of these above-mentioned, and seems to be made only of red and serous Parts ; yet, there are near thirty Liquors separated from it, owing to the different Structure of the Glands, some of which are so small, and so variously wound up, that nothing but the most minute and spirituous Particles of the Blood can pass through them ; and doubtless of such a Structure is the cortical Part of the Brain, by which the animal Spirit are secured.

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THE
CLASSICAL FARRIER.

S E C T. I.

OF THE HIDE, &c.

THAT which we call the COAT, is the hair, and when very smooth, is most agreeable to the eye, and a defence to the animal from cold and heat, as well as from accidents he may be liable to among thorns and bushes, when turned loose to feed.

The first fleshy tegument, or cover, is the scarf-skin, and is that which rises so easily into a blister, by being pinched or scalded; it is not endued with any tender sensation, but will bear the touch without pain; it is produced from the hide, which it involves and covers on all parts, and has from thence its nourishment. Its use is not only to cover the true skin, and defend it from those painful sensations to which it would be exposed, as we daily observe, when it is fretted off, but, as it resembles a curious net-work, and is full of little holes or pores, it is thereby suited to give way to the excrementitious matter which continually exhales from the body.

The next common covering is the SKIN (properly so called) or HIDE, which lies immediately under the other. It is nourished with veins, arteries, &c. and is also porous for the passage of the sweat, or other perspirable matter, which is separated from a vast number of little glands, which lie on the inside of it; and as the scarf-skin is a defence to the hide, so the hide is a defence to those other parts which lie under it.

Underneath the skin is placed the fleshy pannicle, which is muscular, and helps to draw the skin into wrinkles, by which means a horse throws off the dust, flies, or other things that hurt him. It is also nourished with its proper veins and arteries, &c. and besides its peculiar uses, it serves, in concert with the skin, to defend the body from external injuries, viz. by keeping it warm in winter, and preventing a too great exhalation of the spirits in hot weather.

Besides the teguments, there is the fat, and common membrane of the muscles. The fat, which lies between the fleshy pannicle and the said membrane, is distinguished from that which covers the caul, by its oiliness, and is said to be generated of the more unctuous particles of the blood, working through the vessels, and detained there by the closeness of the said pannicle. It is not one continued covering in horses, as in bullocks, and some other animals, but chiefly fills up the interstices of the muscles externally, and is not only a defence, as the other teguments are, but serves to make a horse look plump, smooth, and beautiful. How far it is capable of being again converted into nourishment, we shall not offer here to determine.

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As to the membrane of the muscles, which is the innermost of all the common teguments, it is said to take its origin from the back; and spreading itself all over the body, is knit to their proper coats by a great number of small fibres, yet not so closely as to hinder their action. It is in a horse considerably thick, and serves to strengthen and confirm all the muscles in their proper situation, and to be a cap-sula, or case, to defend them from injuries.

S E C T. II.

OF THE MUSCLES OF THE EYE-LIDS AND EYE.

THERE are three pair of muscles to the eye-lids, one pair to open them, and two to shut them.

That which openeth the eye-lids is called *rectus*, or *aperiens*, from its office. It springeth, with a slender but fleshy beginning, from the same place as the elevator of the eye doth, to wit, at the hole through which the optic nerve passes into the orbit, and holds the same course with it, till at last, parting from it with a pretty broad but thin tendon, it is inserted into the gristle at the edge of the upper eye-lid, where it serves to open the eye-lid by lifting it up.

The other two muscles of the eye-lids are called *shutters*, and otherwise semicircular, because each of them runs the length of the eye-lid; they are seated between the *membrana carnosæ* and the inner smooth skin that lines the eye-lids. That which draweth down

the upper lid, is larger than the muscle which moveth the lower lid to shut it.

The frontal muscles are also thought to contribute something to the motion of the eye-lids, as they arise from the skull near the coronal-suture, and are inserted in the eye-brows; for by their action they contract the skin of the forehead, by which means the upper eye-lid is sometimes drawn a little upward.

The eyes have seven pair of muscles, of which four are straight, two oblique or slanting, and the other pair circular or round. The straight serve to move the eyes upwards and downwards, the oblique move them obliquely, and the circular pair keep the eyes suspended in their place. They all arise from the same origin, to wit, from the membrane that invests the orbit of the eye, near the hole through which the optic nerve doth pass into the said orbit, touching one another at their beginning, but immediately separating into fleshy round bodies, from which they again degenerate toward their termination into a thin membranous substance, which is inserted into the horny coat of the eye, encompassing it as far as it is white.

These muscles have their several appellations from their several actions. The first of the straight muscle, from its office of pulling up the eye, is called *attolens*, and in man sometimes *superbus*, as the second is called *deprimens* or *humilis*. The third is called *adducens*, because it pulleth the eye towards the nose. And the fourth *abducens* or *indignatorius*, from its office of drawing the eye to the outer corner; which turn or aspect of the eye betokens anger or scorn,

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When these muscles act separately, they have these four several motions; but when they all co-operate or work together, they have but one tonic motion, which is principally to keep the eye steady and fixed; but in beasts, that have the suspending muscle, that action is performed chiefly, if not altogether, by it.

The next are the two oblique muscles, which also are termed the *circumagentes*, from their rolling the eye about, and are distinguished by the names of *major* and *minor*; the one being longer than the other, though somewhat slenderer; the longer ariseth from the same origin with those above described, and endeth in a small round tendon, which passeth through the transverse gristle called *trochlea*, into the inner corner of the eye: this rolleth the eye inwards, as the other (which rises from the chink in the lower part of the orbit, and has the same insertion with the major) rolls it towards its outward corner.

The seventh, or round muscle, is called the *suspensorius*, or *septimus brutorum*, being peculiar to brutes only. It is short and fleshy, encompassing the optic nerve, and is inserted in the hinder part of the cornea. This muscle not only assisteth the tonic motion of the eye, but is also useful to keep the eye suspended, lest, by looking continually towards the ground, it should hang too much outward,

SECT.

S E C T. III.

OF THE MUSCLES OF THE NOSE, LIPS, AND CHEEKS.

THE nose is moved by four pair of muscles, two pair called the *adducent*, or closing muscles, and two pair termed the *abducent*, or widening muscles.

The first pair of the *abducent* arise from the upper jaw-bone near the first proper pair of the lips, and are inserted partly into the lower part of the wings, or gristly circumference of the nostrils, and partly into the upper part of the upper lip.

The second pair take their origin near the eye, with an acute and fleshy beginning, and end on the wings, as the other pair, but more expanded. The use of these two pair of muscles is to draw the gristly circumference or wings of the nostrils upwards, and so to widen and open them.

The other two pair, or *adducent* muscles, arise, the one from the root of the gristle, which ascending cross-ways to the ridge or top of the nose, are there inserted. The other are hid in the cavity of the nostrils, under the inner coat that clothes them, and at their insertion are spread on the gristly circumference.

The first pair of these muscles being contracted, depress the *alæ*, or gristles of the nose; and the latter pair draw them inwards, and so close the nostrils; to which motion the orbicular or round muscle of the upper lip is also assistant; for by its drawing it downward, it does at the same time contract the nostrils.

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To the lips belong several pair of muscles, some of which are proper to them alone, and others are common both to them and the cheeks.

The first common muscle is called the *quadratus*, or four-square muscle. It arises from one of the vertebræ of the neck, and some part of it from the shoulder-blade, the collar-bone, and breast-bone; from all which it ascends obliquely to the chin, lips, and root of the nose, which part it draws slanting downward.

The second is the buccinator, which springs from almost the whole length of the upper jaw-bone, at the root of the gums; it is seated under the upper part of the former, and is spread over the whole dimension of the cheek. Besides its use in contracting the cheek in horses and other brute creatures, it greatly assists the action of chewing, by turning the meat, which falls between the teeth and the cheek, over again, to be broken and ground.

The muscles which are proper to the lips only, are accounted by anatomists five pair, and one single muscle. The first is called *par attolens*, or lifts-up of the lip. This pair spring from the upper jaw, where it forms the hollow of the cheek, and are inserted in the upper-lip, near the nose. When both these muscles act together, they draw the upper-lip directly upwards; but if only one acts, then but one side is drawn upward obliquely. The action of these muscles is very perceptible when a horse smells at any thing pungent or offensive to his nostrils.

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The second pair are the *abducent*, or drawers of the lip on one side. They arise from the cavity that is under the os jugale, from whence they take their course on each side to the middle of the upper lip, where they are inserted with a strong round tendon; these jointly move the lip upwards and outwards, as the former; and when they act separately, they assist the former, by helping to draw the lip sideways.

The third pair is called by Riolanus *zugomaticum*, or *jugale*, from their rise, which is outwardly from the process of the bone of that name. These reach to the sides of the upper lip, and are inserted near the corner of the mouth. Their use is to draw the lip sideways upwards.

The fourth pair is called *deprimens*, from their office of drawing the under lip downwards. They arise fleshy and broad from the lowermost part of the lower mandible, from whence each marches obliquely to the under lip, and are inserted into it about its middle. This pair assist in the same action with the first of the common muscles called the *detractus quadratus*.

The fifth pair, or oblique *detractus*, from their office of drawing the lower lip obliquely downwards and outwards. They take their beginning from the sides of the lower jaw, from whence they ascend upwards, and are each inserted into the corners of the lower lip.

The odd muscle, or *orbicularis*, so called because it goes round both lips, and sometimes *constringens*, as it serves like a sphincter, to purse up or contract
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the mouth, makes up the greatest part of the lips, and has all the other muscles inserted into it.

S E C T. IV.

OF THE MUSCLES OF THE LOWER JAW.

THE upper jaw being immoveable, hath no muscles, but the lower jaw having divers actions, is moved by five pair.

The first are called the *temporal muscles*, because they are seated on the temples. They spring on each side from the bones of the forehead, the sinciput, the temples, and os cuneiforme, or wedge-like bone, and descend under the os jugale, between the periosteum and pericranium, to the acute process of the lower jaw, into which they are inserted. These muscles pull up the lower jaw, and shut the mouth.

The second pair arise from the styloid process of the temporal bone, fleshy and round towards their origin, but lose their fleshy substance, and degenerate into a nervous and round tendon as they approach the flexure of the lower jaw-bone; and then becoming fleshy again, are inserted into the inner side of the lower jaw towards its middle or fore-part; these being assisted by the quadrati above described, pull down the jaw, and so open the mouth.

The third pair are called the *masseters*, being very assistant in the office of chewing, by moving the jaw to the right and left side; each of these hath two beginnings, one from that suture where the fourth

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and first bone of the upper jaw are joined ; and the other from the os jugale, and are largely inserted into the outsides of the lower jaw. These, by reason of the diversity of their fibres, move the jaw divers ways.

The fourth pair are called *pterygoideum externum*. These have a double beginning, as the former, springing partly from the upper and outside of the wing-like process of the os cuneiforme, or wedge-like bone, and partly from the rough and sharp line of the said bone ; from whence, descending downwards, they are inserted in the inside of the lateral part of the lower jaw ; by which means they move forwards, stretching the teeth of the lower jaw farther out than those of the upper.

The last pair are called *pterygoideum internum*. These arise from the cavity of the wedge-like bone, and are inserted in the inner and hinder part of the lower jaw. Their use is to draw it backwards, contrary to the former, and also to assist the temporal muscle in drawing it upwards.

S E C T. V.

OF THE MUSCLES OF THE EAR.

THE muscles of the ears in brutes, especially horses, asses, oxen, and other animals that have large ears, differ much in magnitude from those in man, they being endued with little or no capacity of motion ; but that is made up in man by the easy motion of the head, by which means he can readily
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turn himself to the hearing of all sounds; whereas four-footed beasts wanting that agility, need to have their ears always moveable to receive the sounds every way, and likewise to drive off flies and other insects that are troublesome to them, which men can do with their hands.

The outward ear has four muscles, which are considerably larger in brute creatures than in man; and the inward ear has two, which are proportionable in both.

The first is called the *attolens aurem*, the lifter up of the ear. It arises at the outside of the frontal muscle, from whence being carried over the temporal muscle, it is inserted in the upper part of the ear, moving it upwards and forwards.

The second is called *detrahens aurem*, or the puller back of the ear. This arises from the mammillary process, and is inserted into the root of the gristle of the ear.

The third, or *adducens aurem*, by which the ear is drawn forwards, and somewhat downwards, is implanted into the lower side of the root of the ear, and is only part of the *musculus quadratus* before spoken of.

The fourth, or *abducens aurem*, because it draws the ear backwards, takes its beginning at the occiput, or back part of the head, whence it is carried transversely to the hinder part of the ear, into which it is inserted. This muscle is assisting to the second.

The first of the two muscles of the inner ear, called *externus tympani auris*, or the external muscle of the drum of the ear, because it moves that membrane upwards and outwards, arises from the upper part of the passage of the ear, and becoming nar-

rower, it grows into a very fine and small tendon, which runs along the outside of the drum, and is inserted into its centre over the hammer, which, along with the drum, it draweth upwards and outwards.

The internus, or inner muscle, takes its rise from the bottom of the wedge-like bone, where it joins to the processus petrosus; it lies within the cavity of that bone, and at its middle is divided into two very small tendons, whereof one is inserted into the upper process of the hammer, and the other into the neck of it. The use of this muscle alone, is to draw the head of the hammer obliquely forwards, and also to bring it somewhat inwards; but when they act both together, they move the tympanum with its small bones upwards and downwards. This action is performed as often as an animal attentively listens to any approaching noise.

S E C T. VI.

OF THE MUSCLES OF THE TONGUE, AND OS HYOIDES, WITH THOSE OF THE LARYNX, UVULA, AND THROAT.

THE tongue has five pair of muscles proper to itself, besides those that are common to it and the os hyoides.

The first pair are called the *genioglossum*, because they arise from the chin in men, and are inserted in the tongue. In a horse they arise from the ruggedness on the middle of the lower jaw, in the inner and lower part of it; they have several such inscriptions

as these on the streight muscles of the paunch, and are inserted into the lower side of the middle of the tongue. Their use is to move the tongue forwards, which action is frequently performed by horses when they gather their meat.

The second pair, called *ypsiloglossum*, because they rise from the bottom of the *os hyoides*; they are inserted in the middle of the tongue, and in their action are contrary to the former, by drawing it backwards.

The *myloglossum*, or third pair, arise from the inner part of the lower jaw, at the roots of the farthest grinding teeth, and are inserted into the ligament which ties the tongue to the jaws. When these act together, they draw the tongue downwards, but when they act separately, they draw it obliquely to one side.

The fourth pair, called *ceratoglossum*, because they arise from the horns of the *os hyoides*, from which, reaching to the sides of the tongue, they are there inserted. Their action is much the same with that of the third pair.

The last pair are called *styloglossum*, because they arise from the styloides, or pen-like process of the temple-bone. They are inserted into the sides of the tongue about its middle. When these act singly, they draw the tongue to one side, but when conjunctly, they pull it upwards and inwards.

The fork-like bone of the tongue, called the *os hyoides*, hath four pair of muscles, which are common to it and the tongue.

The first pair is called *sternohyoideum*, because they spring from the inside of the upper part of the sternum

num or breast-bone, and taking their course close by the wind-pipe, are inserted into the root of the os hyoides, which they move downward and backward.

The geniohyoiderm is opposite to the former, arising from the inside of the fore-part of the lower jaw, and is inserted into the middle-part of the bone hyoides, which draws it straight upwards, and a little forwards.

The third pair, called the *caracohoiderm*, arise out of the *processus carocoides*, at the upper end of the shoulder-blade, and run obliquely upwards under the first pair of muscles of the head, and are at length inserted into the horns of the hyoids. Their use is to pull that bone obliquely downwards.

The fourth and last pair, called the *stylocerato-hyoiderm*, arise from the styloid process, and also end in the horns of the os hyoides; they move that bone obliquely upwards.

As the muscles of the cheeks and tongue serve to toss the meat to and again in the mouth, and those of the lower jaw help to grind it; so these muscles, which are common to the tongue and os hyoides, are principally of use to give the tongue such motions as forward it into the gullet, when it is sufficiently prepared to go into the stomach.

The larynx, or upper part of the wind-pipe, has six pair of muscles, and one single one. The first two pair being common to it, and all the rest proper.

The first of the common pair is called the *sternothyreoideum*, and by some *bronchium*, or the weasand
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muscles. These arise from the upper and inner part of the breast-bone, ascending by the sides of the wind-pipe to the shield-like gristle, where they are inserted. Their use is to draw down the said gristle, and so to widen the chink.

The second pair, called *hyothyreoideum*, arise from the lower side of the os hyoides, and are inserted into the thereoid gristle. These are said to streighten the chink of the larynx, though some affirm they widen it, and that the other pair contract it.

The first pair of the proper muscles of the larynx, called *cricothyreoideum anticum*, because they take their beginning from the ring-fashioned gristle cricoides, and are implanted in the sides of the thereoides, which they move obliquely downwards, thereby opening the chink of the larynx.

The next pair, called *cricoarytænoideum posticum*, arise contrary to the former, from the lower and back part of the ring-fashioned gristle, and are inserted in the lower end of the ewer-like gristle, whereby they raise it upward and backward to open and widen the larynx.

The third or lateral pair, arising from the sides of the ring-fashioned cartilage, terminate in the sides of the ewer-like gristle, opening also the larynx, by drawing the gristles obliquely to one side.

The fourth pair are the largest and strongest of all the proper muscles of the larynx, and arise close one to another from the middle of the hollow part of the shield-like gristle, filling that cavity through its whole length, and are inserted into the two sides of the ewer-like gristle, assisting the former.

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The fifth and last, called *arytænoides*, or *claudens secundum*, take their rise from the hinder line of the ewer-like gristle *arytænoides*, and is implanted in the sides of the same. This single muscle helps to streighten the throttle, by drawing both sides of the ewer-like gristle together.

The epiglottis, or throat-flap, which covers the chink of the larynx, has no very distinct muscles, but in those creatures that chew the cud, and shall therefore be omitted in this place.

The uvula is said to have two muscles to hold it up, which have also very hard and long names bestowed on them, but they are so inconsiderable, that they are hardly worth notice.

The pharynx, which is the upper part of the gullet, has belonging to it three pair of muscles, and a single one, besides two pair of a later discovery. The first pair are called the *sphenopharingæum*, which arise from the appendage of the wedge-like bone, and are inserted into the lateral parts of the palate and pharynx, which they widen in swallowing.

The next pair are called *cephalopharingæum*, springing from that part of the head which joins to the first vertebra of the neck, and are implanted on the outside of the pharynx, streightening it by their action, as soon as the food has passed through it, thereby also forcing it down the gullet.

The third pair, called *stylopharingæum*, arise from the styloid process of the temporal bone, and are inserted into the sides of the pharynx, which they dilate and widen.

The single one, which has the name of *æsophagiæus*, encompasseth the upper part of the gullet, form-

forming its sphinctre, and serving for the same use as those of the arms and bladder, drawing and closing up the mouth of the gullet, as those do the extremities of the bladder and streight gut.

The last two pair, first discovered by Dr. Browne, were by him called *pterygopalatini* and *sphenopalatini*. The use of the first pair being to depress the glandula palati, and that of the second to elevate and lift it up.

S E C T. VII.

OF THE MUSCLES OF THE HEAD AND NECK.

THERE are four pair of muscles common to the head and neck, and eight pair proper to the head only.

The mastoideum, which modern anatomists reckon the first proper pair, have each a double beginning, one from the breast-bone, nervous, and the other from the collar-bone, which is fleshy; from whence they ascend obliquely to the mammillary processes of the temporal bone, into which each is inserted. When these act together, they bend the head forward; but, when separately, they draw it a little to one side.

The splenium are reckoned the second pair, being the first of those which pull back the head; they arise from the five uppermost vertebræ of the chest, and the five lowermost of the neck, with a nervous beginning, ascending to the hinder part of the head,

where they are inserted. When these act together, they draw the head backward, but when they act singly, they draw it a little to one side.

The third pair, named *complexum*, or *trigeminum*, because each of them arises with three heads; two from the first, second, fourth, and fifth transverse processes of the chest, and the third from the ridge of the seventh vertebra of the neck; all which uniting together, are inserted into the noll-bone.

The third puller-back of the head, or fourth pair, called *parvum crassum*. These are situated under the former, arising nervous from the transverse processes of the six uppermost vertebræ of the neck, but afterwards, becoming fleshy, are carried obliquely upward, and are inserted into the hindermost root of the processus mammillaris. When these act singly, they incline the head lightly backward to one side, but when they act together, they bring it straight backward.

The rectum majus, and rectum minus, which make up the fifth and sixth pair, are seated one under the other, and are both inserted into the noll, assisting the fourth pair in their action.

The obliquum superius, which is accounted the seventh pair, arise from the middle of the occiput, and are inserted into the lips of the transverse processes of the first vertebra of the neck; their use being to nod the head backward.

The last pair, called *obliquum inferius*, take their origin from the spine or ridge of the second vertebra of the neck, and forming an oblique course, terminate in the transverse processes of the first vertebra, being

being of use to move the head semicircularly. Now the reason why there are so many muscles appointed to move the head backward, is because of its great bulk and weight; by which means it is of itself prone enough to incline forward and downward, so that it wants not only a stay, but requireth a greater force to move it upward or backward.

The muscles common to the head and neck, are in number four pair, as has been observed.

The first called *spinatum*, because they are seated among the spines of the vertebræ, take their rise from the root of the spines of the seven uppermost vertebræ of the chest, and five lowermost of the neck, and are inserted into the whole lower side of the spine of the second vertebra of the neck. Their office is to bend the neck backward, or a little obliquely.

The next pair is called *transversale*, because they both arise, and are inserted into the transverse processes of the vertebræ, arising from those of the uppermost vertebræ of the chest; and being inserted into the outsides of all the transverse processes of the neck-bones. Their use is the same with the first pair.

The third pair, called *longum*, lie hid under the gullet, arising from the body of the fifth and sixth vertebræ of the back, and reaching the highest vertebra of the neck, into which they are inserted. Their use is contrary to the first two pair, bending the neck forward when they act together, and when they act singly, to one side.

The last pair is called *triangulare*. These are seated forward on the sides of the neck, having some perforations, by which veins, arteries, and nerves, pass out of the body into the fore-legs.

S E C T. VIII.

OF THE MUSCLES OF THE BREAST.

HAVING briefly run over the muscles which serve to move the head and neck, we come now to those of the breast, which actuate the chest, whereof four pair widen and dilate it, and two pair contract it.

The first of those which serve to widen the breast, are called *subclavium*, from their situation under the clavicle, or collar-bone. These arise from under that bone, and are implanted into the first rib near the breast-bone, drawing the first rib upward and outward.

The second pair, called *serratum majus anticum* (from the resemblance their tendons have to the teeth of a saw) arise from the inside of the shoulder-blade, and the two upper ribs, and are inserted into the lower five true ribs, and two upper short ribs, so that their breadth takes up a great part of the side of the chest. These co-operate with the first pair in widening the chest, as do also the two following pair, viz. the *serratum posticum superius*, rising from the spines of the three lower rack-bones of the neck, and first of the back, and being inserted
into

into the interstices of the upper ribs; and the *par ferratum posticum inferius*, taking its origin from the spines of the three lowermost vertebræ of the back, and first of the loins, and having their insertions into three or four lower ribs, before they turn cartilaginous.

These four pair, together with the midriff, and the widening intercostal muscles, dilate the chest in inspiration; that is to say, in drawing in the breath; and the two following pair, viz. the *triangulare* and *sacro-lumbum*, with the internal and intercostals, depress the chest in expiration or letting-forth the breath. The triangular pair having their rise from the middle line of the breast bone, on its inside, and their insertion into the bony ends of the third, fourth, fifth, and sixth true ribs; and the other pair taking their origin from the *os sacrum* and spine of the loins, and having their insertion into the lower side of all the ribs, about three or four fingers breadth from the ridge of the back.

S E C T. IX.

OF THE MUSCLES OF THE BACK AND LOINS, WITH THOSE OF THE FUNDAMENT AND BLADDER.

THE muscles of the back and loins are usually reckoned four pair, which are common to both.

The first go by the name of *longissimi*, from their extraordinary length, being the longest of the whole body,

body, and endued with most strength. They arise from the os sacrum and haunch-bone, and passing by the ridge of the loins, back, and neck, they reach to the mammillary processes of the temple-bones; they are almost confounded with the *par sacrolumbum* and the *semispinatum*, in their passage through the loins, but arriving towards the back, they again part with them, and appear to be distinct from them. When both act together, they extend the back and loins, but when they act singly, they incline the spine to one side. They are of farther use to most creatures, but especially to beasts of burden, being a bar and stay to the whole back.

The *par quadratum*, or second pair, so called from their figure, being square when joined together, though triangular when separate. They arise broad, thick and fleshy, from the backward and upper cavity of the haunch-bone, and from the inner and upper side of the os sacrum, and are inserted into all the transverse processes of the *vertebræ* of the loins. Their use is to bend the racks of the loins with a right motion forward or downward, but when one only acts, it draws the loins to one side somewhat downward.

The third pair, arising from the os sacrum, are therefore called *par sacrum*; they spring from that part of the said bone where the spine is fastened, ending in the spine of the lowest vertebra of the thorax; but at the same time having in their passage several insertions into divers of the spines and oblique processes of the *vertebræ* of the loins. If these act separately, they pull the body a little on one side;
but

but when both act together, they extend that part of the spine to which they are fastened.

The last pair, called *semispinatum*, arise with a nervous original from all the spines or ridges of the os sacrum and loins, and are inserted into the transverse processes of the loins, and some of the lowermost of the chest. When all these muscles of the back and loins work together, the whole back is extended; but if the muscles of that side alone, the body is then inclined to that side.

The anus hath three muscles, two called the *levators*, and one named its *sphinctre*.

The sphinctre is seated at the extremity of the straight gut, encompassing it all round like a ring. It is attached to the lower vertebræ of the os sacrum, composed of circular fibres, being of use to contract the orifice of that gut, as has been observed in another place.

The two levators, or lifters-up of the fundament, are small, broad, and nervous, arising from the ligaments of the hip-bones and os sacrum, from whence, passing by the sides of the gut, they adhere to it, and are inserted into the upper part of the sphinctre; a portion of them also growing to the root of the yard, and in mares to the neck of the matrix. Their use is to assist the muscles of the lower belly in the expulsion of the excrements, which they do by lifting up the fundament.

The bladder has also its sphinctre, which is composed of circular fibres, as that of the anus; and in like manner serves to constrict or draw up its neck, that the urine may not pass out without a spontaneous

spontaneous relaxing of that muscle. In mares it is seated at the orifice where the neck of the bladder opens into the vagina.

Having already taken notice of the muscles belonging to the yard, called its *erectors* and *dilators*, and the cremaster muscles, by which the stones are suspended, as also those of the clitoris in mares, we shall therefore pass them by in this place, and proceed to the shoulder-blade, &c.

S E C T. X.

OF THE MUSCLES OF THE SHOULDER-BLADE AND SHOULDER, WITH THOSE WHICH MOVE THE FORE-LEG AND FOOT.

THE shoulder-blade has four pair of muscles, agreeable to its four several motions.

The first pair, called *cucullares*, from the resemblance they bear to a monk's hood, are seated between the two shoulder-blades, covering the top of the withers. These arise thin and fleshy from the hind part of the head, but as they pass down the neck, have other membranous beginnings from five of its spines, and from eight or nine of the uppermost of the chest, and are inserted into the whole spine of the shoulder-blade, as also into the shoulder-bone, and broader part of the collar-bone. When the upper part of this muscle is contracted, then the shoulder-blade is thought to be moved somewhat obliquely upward, because of the oblique direction
of

of its fibres; but when that part which springs from the withers is contracted, it is then pulled straight thitherward.

The second pair are called *levator*es, or lifters. They are situated above the collar-bone, arising from the transverse processes of the first four vertebrae of the neck, and are inserted into the fore corner of the shoulder-blades; these draw the blades upward and forward.

The third pair, named *serratum minus anticum*, lie under the pectoral muscles, and spring from the four uppermost ribs, before they turn gristly, by four fleshy portions representing the teeth of a saw, and are inserted into the anchor-like process of the shoulder-blade. These move the shoulder-blades forward toward the chest.

The last pair, called *rhomboides*, are seated under the cucullares, and take their origin from the hinder processes of the three lowermost spines of the rack-bones of the neck; and from the three uppermost of the chest, and are implanted into the basis of the shoulder-blades, their use being to draw them somewhat upward and backward.

The shoulder has five several motions performed by nine muscles, viz. backward, forward, upward, downward, and circularly.

But before we proceed to a description of its muscles, it will be proper to intimate, that although the shoulder-blades in horses are generally taken for part of the shoulder, yet anatomists have always distinguished between the shoulder-blade and shoulder, accounting that part only to be the shoulder, which

is joined to the shoulder-blade, and reaches toward the elbow.

The first of its muscles is called *deltoides*, from its figure resembling the Greek letter Δ. It arises fleshy from the midst of the collar-bone, the top of the shoulder, and the whole ridge of the shoulder-blade, and is inserted in the middle of the shoulder-bone. This muscle not only raises up the shoulder, which is its chief and principal use, but by the various directions of its fibres, it assists in other motions, but especially in that which is circular.

The second erector of the shoulder is named *supraspinatus*, because it fills all that cavity which is between its spine and upper edge. It arises from the spine of the blade, with a long and fleshy beginning, and is inserted into the neck of the shoulder-bone by a strong and broad tendon.

The *latissimus* and *rotundus major*, are the two depressors of the shoulder; the first is so called from its breadth; for, with its fellow, it almost covers the whole back. It rises from the tops of all the spines of the rack-bones that are between the sixth vertebra of the chest, and the middle of the os sacrum, as also from the upper part of the haunch-bone, and is inserted below the upper head of the shoulder-bone length-ways.

The second depressor, which is the fourth muscle of the shoulder, called *rotundus major*, takes its origin from the lower costa of the shoulder-blade, and is inserted into the upper and inner part of the shoulder-bone. The use of this, and the last described, is to pull the shoulder downward.

The

The two pair of muscles which bring the shoulder forward, are called, the one by the name of *pectoralis*, and the other *coracoideus*. The *pectoralis* is so called from its situation on the fore-side of the breast. It arises from the middle of the collar-bone; its middle proceeds from the whole length of the breast-bone, and the ends of the gristles of all those ribs which terminate in it; and its lower part springs from the sixth, seventh, and eighth ribs. Its insertion is with a broad and finewy tendon into the shoulder-bone, a little below its head.

The *coracoideus* has its beginning from the process *coracoides*, from whence it reaches to the middle of the shoulder-bone, where it terminates. The use of this, and the former, is to draw the shoulder forward.

The following three muscles, viz. the *infraspinatus*, *subscapularis*, and *rotundus minor*, move the shoulder backward.

The *infraspinatus* arises from the basis of the blade below its ridge, and is inserted, by a broad and short tendon, into the fourth ligament of the shoulder-bone.

The *subscapularis* is seated between the scapula and ribs, and is inserted into one of the ligaments of the shoulder; and the *rotundus minor*, which arises from the lowest corner of the scapula, is implanted into the neck of the shoulder-bone.

As to the circular motion of the shoulder, that is not performed by any single muscle, but by several of these already named acting successively one after another, which is easily enough to be conceived by those who carefully observe their origins and in-

sertions, and the various directions of their fibres. But we shall now proceed to those that move the fore-leg and foot.

The fore-leg is bended by two muscles, viz. the biceps and brachiaëus internus.

The *biceps*, so called from its double head, or beginning, arising partly from the upper brim of the shoulder-blade, and partly from the anchor-like process of the same bone. This muscle becometh strong and fleshy, and runs all along the inside of the cubit-bone to the knee, where it is inserted. Its office is to bend the cubit forward, and somewhat inward.

The second, or *brachiaëus internus*, so called in man, from its situation on the inside of the arm, and may properly enough retain the same name in a horse. This takes its beginning near the insertion of the deltoides, after which it runs its course as the former, and is inserted into the fore-side of the cubit-bone, a little above the knee, and is assisting to the former.

Two muscles also extend the cubit, and these are seated on its hind part; the first is called *longus*. It takes its origin from the lower rib of the blade-bone, and descending along the hinder part of the shoulder-bone, is inserted into the outside of the cubit-bone, toward the knee. This draws the leg backward, and somewhat outward, and thereby stretches it out streight.

The second is called *brevis*, from its shortness; it arises from the hinder part of the neck of the shoulder-bone, and holding the same course with
the

the first, it is inserted also with it, and assists it in its motion.

There are besides these, two other muscles, which give their assistance in extending the cubit, viz. the *brachiaëus externus*, and *anconæus*; but Spigelius, and others, have thought the one to be only part of the longus, and the other a part of the short muscle, and therefore have left them out.

These are all the muscles that move the fore-leg of a horse, falling somewhat short of the number of those which move the arm of a man, by reason a horse has only one single bone in that part, whereas there are two in the arm of a man, viz. the cubit and ulna, which serve to turn the arm and hand round; which kind of motion is not necessary for a quadruped.

The shank, which somewhat answers to the metacarp in a man, has the same number of muscles with the fore-leg, viz. two extensors, and two flexors.

The first of the flexors, or benders, is called *cubitæus internus*; it arises from the inner knob of the shoulder-bone, and is implanted into the inner and hinder sides of the top of the shank. The second may be called the *cubitæi interni socius*, or *auxiliarius*, as having the same rise, progress, and insertion, with the other.

The extenders of the shank are the *cubitæus externus*, and its fellow, which take their origin from the outer knob of the shoulder-bone, and are inserted into the outer and fore-side of the head of the shank.

The

The next joint is the great pastern, answering to the first joint of the finger in a man's hand, as the little pastern does to the second, and the coffin joint to that on which the nail grows; all which are bended and extended as the former.

The first bender of the pasterns and coffin-joint is called *sublimis*; it springs from the inner knob of the shoulder-bone, and is inserted into the pasterns.

The second is named *profundus*, arising from the upper part of the cubit-bone, and bending its course down to the coffin-joint, into which it is inserted.

They are extended by one considerable muscle, called *extensor magnus*. This springs from the outer knob of the shoulder-bone, and is inserted into the fore and outer parts of the pastern and coffin-joint.

Lastly, the muscle which answers to that called *palmaris* in a man; it arises fleshy from the inner knob of the shoulder-bone, but presently grows into a slender tendon, which descends to the sole of the foot.

T A B L E

T A B L E I.

Represents a Horse standing with his Face towards us, that any Person may have a full View of all the Muscles that appear on his Fore-Parts.

1. Represents the par mastoideum.
2. The muscles of the scapula, or shoulder-blade.
3. The par trigeminum, or complexum.
4. The par triangulare, or scalenum.
5. The wind-pipe in its natural situation.
6. The par longum, removed from under the gullet.
7. The pair of the nose, called philtrum.
8. The closing muscles of the nostrils.
9. The muscles of the eye-lids.
10. The temporal muscles.
11. The muscles of the ear.
12. The frontal, or forehead muscles.
13. The cucullaris, or monk's hood.
14. The deltoides of the shoulder.
15. The serratus major anticus, shrunk up.
16. The pectorals.
17. The deltoides of the thigh.
18. The serratus posticus.
19. The external intercostal muscles.
- 20, 21, 22. The three buttock muscles.

S E C T. XI.

OF THE MUSCLES OF THE THIGH, AND THOSE WHICH MOVE THE HIND-LEG AND FOOT.

THE thigh of a horse comprehends that part which is between the joint of the huckle, or whirl-bone, and the flifle.

It is moved by several muscles, the first of which are called the *benders* of the *thigh*, and are in number three, viz. the psoas, the iliacus internus, and pectineus.

The first of these arises fleshy from the transverse processes of the two lowermost vertebræ of the chest, and two or three uppermost of the loins, from whence, descending by the inside of the os ilium, it ends in a strong round tendon, which is inserted into the fore-side of the upper part of the lesser head of the thigh bone. The use of this muscle is to draw the thigh upward, and somewhat inward.

The second, or iliacus internus, springeth with a slender fleshy beginning from the inside of the haunch-bone; and being joined by its tendon to the former muscle, is inserted by a round tendon into the lesser head, or rotator, of the thigh bone. This muscle is also of use to raise the thigh upward, though not so much inward as the other.

The pectineus, which is the last of these three muscles, arises broad and fleshy from the line of the share-bone, near the gristle, and is implanted with a broad and large tendon into the lower end of the thigh-bone. This draws the thigh upward and inward,

ward, and is that muscle, which; in men, helps to lay one thigh over the other.

This muscle, and all those that follow, except the two last, are inserted into the lower end of the thigh bone, just above the stifle; whereas in men, they are most, or all of them, inserted into its upper part, either at its neck, or into one or other of the two knobs at the lower end of its neck, called the great and lesser *trochanters*.

Mr. Snape thinks the reason of this difference is owing to the shortness of the thigh-bone of a horse, compared with that of a man, whereby his muscles being very plump and bulky upon his buttocks, it was necessary they should have some space to grow more slender, and become tendinous; and therefore he says they are extended as far as the stifle, which answers to the knee in man. But this is also owing to the different action of the thigh of a horse from that of a man, which manifestly requires its muscles to have a lower insertion.

As there are three muscles which bend the thigh forward, it has the same number to bend it backward.

The first is called *glutæus externus*, or the most outward buttock-muscle; it rises with a fleshy beginning from the crupper, the ridge of the haunch-bone, and from the os sacrum, and passing over the joint of the huckle-bone, it ends in a strong and broad tendon, which is inserted above the stifle into the inner part of the thigh-bone. Its use is to extend the thigh, and enable a horse to go backward.

The next is called the *glutæus medius*, lying in man directly under the other; but in a horse, side by side

with the other. It rises from the spine of the haunch-bone, a little higher than the other, and from thence descends obliquely over the joint of the hip, and is inserted into the lower end of the outer side of the thigh-bone. Its use is to extend the thigh, and to draw it outward and backward, as when a horse stands to stale.

The third and last of the extenders is called *glutæus minor*, or lesser buttock-muscle; it rises round and fleshy as high as the former, and descending obliquely over the joint of the hip to the lower end of the thigh-bone, is inserted somewhat towards its fore-side. This assists the other in its action.

The thigh is moved inward by the triceps; or, according to some, the quadriceps, from its having four heads; the first head rising nervous from the upper part of the share-bone, and descending to the inside of the lower end of the thigh-bone. The second beginning fleshy at the lower side of the same bone, and ending a little higher than the former. The third arising partly nervous and partly fleshy, from the under side of the coxendix, is inserted near the last. The fourth, having a like origin from the tip of the coxendix, runs along the inside of the thigh, and ends in a round tendon, which joining with the tendon of the first part of this muscle, has the same insertion with it.

The thigh is also turned outward by four small muscles, called *quadrigemini*, all which are placed one by another, upon the outside of the articulation of the thigh. The first is the longest, and takes its origin from the lower and outer part of os sacrum; afterwards, passing over the great rotator, it is inserted

serted into the outside of the lower end of the thigh-bone.

The second and third arise both of them from the knob of the os ischium, near each other, and are inserted with the first.

The fourth is more fleshy than the rest, arising from the inner part of the knob of the ischium, and terminating with the former. To these must be added the deltoides of the thigh, which springs from the outside of the tip of the ilium, with a sharp beginning, but growing triangular, is inserted with a broad membranous tendon into the outside of the thigh-bone; by its situation it seems to assist the action of the quadrigemini.

But lastly, the thigh is turned obliquely by two muscles, called *obturatores*, or *slopers*. The first is called obturator internus, and takes its origin from the inner circumference of the hole above-mentioned, and is inserted into the cavity of the great rotator. The obturator externus, from the external circumference of the said hole, and is inserted into the same cavity with the former.

The leg has three several motions peculiar to it, viz. it is bended, extended, and turned obliquely outward; to perform all which motions, there are the same number of muscles in horses as in man, only that some of them are different from those in men with respect to their insertions.

It has first of all five muscles, called *extenders*, of which the first is named membranous; and by some the fascia lata, because it involves and covers almost all the muscles of the thigh. This muscle rises fleshy from the upper part of the os ilium, near the

great process of the thigh-bone; and covering the whole thigh and the stifle, over which it crosses, it is at last inserted into the fore and upper part of the leg. Its use is to extend the leg directly; or, according to some, to draw it obliquely outward.

The second is called *longus*, arising from the upper part of the appendix of the os ilium; and passing obliquely down the thigh, it is inserted into the bone of the leg, a little below the stifle. This muscle not only extends the leg, but helps to draw it inward; for which reason some authors reckon it one of the benders of the leg.

The third is called *rectus*, from its straight course. It takes its beginning from the lower brim of the haunch-bone, and descends straight down the fore-side of the thigh, until it reaches the stifle, where it turns into a strong and broad tendon; and adhering to the patella, in its passage over it, it is at last inserted into the fore-side of the upper part of the shank.

The fourth is named *vastus externus*, because of its great bulk; it rises from the root of the great trochanter, and from the neck of the thigh-bone, cleaving close to its outside, until it arrives at the stifle, where, becoming membranous and broad, and uniting with the tendon of the straight muscle, it is inserted into the same place with it, but on its outside.

The last, or *vastus internus*, rises from the root of the lesser trochanter, and descending down the inside of the thigh-bone, it unites itself with the former two, after it has passed over the stifle, and is inserted with them into the same place of the tibia. These
three

three last-described muscles joining together at their crossing the stifle, form one broad and strong tendon, which involves the paletta, or knee-bone of the stifle, and tying it so firmly that it is almost impossible for it to be displaced.

The benders of the leg are in number four, viz. the biceps, the semimembranosus, the semitendinosus, and gracilis.

The biceps rises sharp and nervous from the appendage of the coxendix, and passing along the outside of the thigh, is inserted into the outside of the appendix of the tibia, or leg-bone. This bends the leg by pulling it backward.

The next is the semimembranosus, which takes its beginning from the knob of the coxendix, as the other, and running down the back part of the thigh, is inserted into that part of the leg-bone, which in man is called the ham.

The third is called *semitendinosus*, being partly nervous and partly fleshy, as the other is partly fleshy and partly membranous. It has the same origin with the other two; but descending obliquely towards the inner part of the thigh, it reaches to the middle of the leg-bone, into whose inner part it is inserted.

The fourth is called *gracilis*, being slender; it arises with a nervous beginning, from the middle of the share-bone, and descending along the inside of the thigh, is inserted near the other. When these muscles act together, they draw the leg directly backward; but when they act singly, some being placed more outward, and some more inward, they then bend the leg either to this or that side.

But

But besides these, there is another called *popliteus*, which moves the leg obliquely. This rises broad and nervous from the outer head of the thigh-bone, and going obliquely down the thigh, is inserted in the back part of the upper knob of the tibia.

We come now to the muscles which move the lower part of the leg and foot; and here it will be necessary to take notice, that by the lower part of the leg, is to be understood that space which reaches from the hock to the great pastern, which we find to be answerable to the instep in men, as the great and little pastern answer to the first and second joints of the toes; and the coffin-joint to that whereon the nails grow.

The instep is bended by two muscles, viz. the *tibæus anticus*, and *peronæus anticus*. The first arises sharp and fleshy from the upper appendix of the leg-bone, cleaving close to its descent, and passing under the gristle of the hock, is divided into two or more tendons, that are inserted into the fore side of the instep-bone, which, with the rest of the foot, it moves forward and upward,

The second is called *peronæus anticus*, though improperly in a horse, who wants that bone which in a man is named *perone* or *fibula*. This takes its origin from the upper appendix of the tibia, or leg-bone, and is inserted into the outside of the instep-bone, which, with the rest of the foot, it moves forward, and somewhat outward.

The foot is also extended or drawn backward by three muscles, the first is called *gastrocnemius externus*; and is that muscle, which, in man, forms the calf of the leg. It takes its rise from the inner head of the

the thigh-bone, and part of it from the outward head of the same bone, and afterwards uniting together about the middle of the leg, they there turn into one strong tendon, which being united with that of the following muscle, viz. the *gastrocnemius internus*, are both inserted into the heel-bone.

This muscle lieth somewhat under the former, arising from the hinder part of the upper end of the leg-bone, and is inserted as aforesaid.

The last extender of the foot is called *plantaris*, or the muscle of the sole or tread; it arises fleshy, round, and slender between the former two, taking its origin from the back part of the lower head of the thigh-bone, and, in its descent, soon becomes a slender round tendon, which, joining very closely with the tendons of the former two, passes down to the heel-bone, where it leaves them, and proceeds along the back part of the instep-bone, and the two pasterns, terminating within the foot all over the bottom of it, making that part of the foot which lies next under the sole, and plainly appears when the sole is drawn out. The tendons of these three muscles joining together, form the great sinew called *magna chorda*, by which the butchers hang up their meat.

The foot is also moved somewhat sideways, viz. inward and outward, by two muscles.

The first is called *tibialis posticus*, having its origin from the upper end of the leg-bone, and its insertion into the sole of the foot, its use being to move the foot obliquely inward.

The second, called *peronæus posticus*, arises from the upper and hinder part of the leg-bone, by a nervous and strong beginning, and descending with the tendon

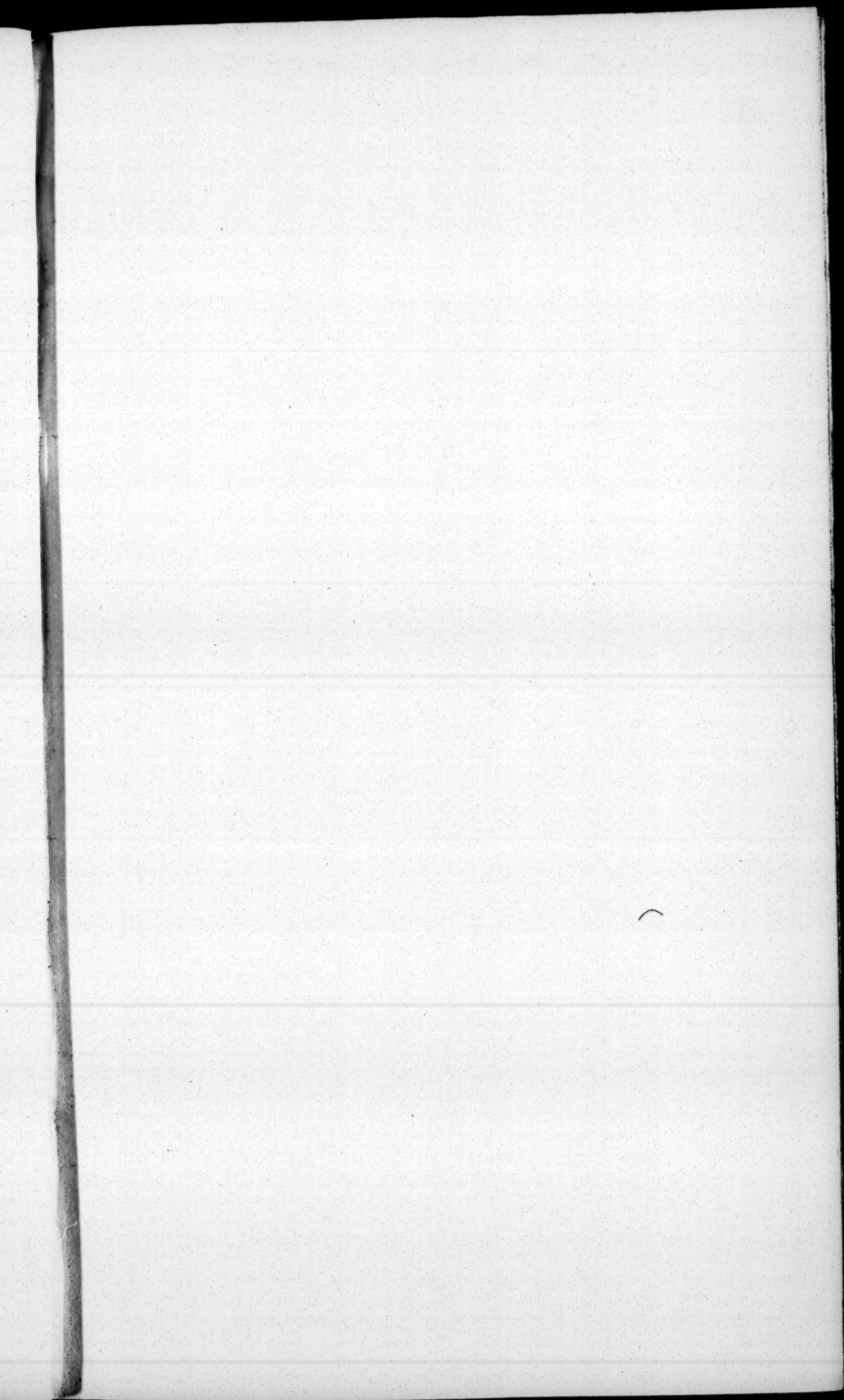
don of the peronæus anticus, on the outside of the hock, continuing its course beyond it to the bottom of the foot, into which it is implanted. This moves the foot contrary to the former, viz. obliquely outward.

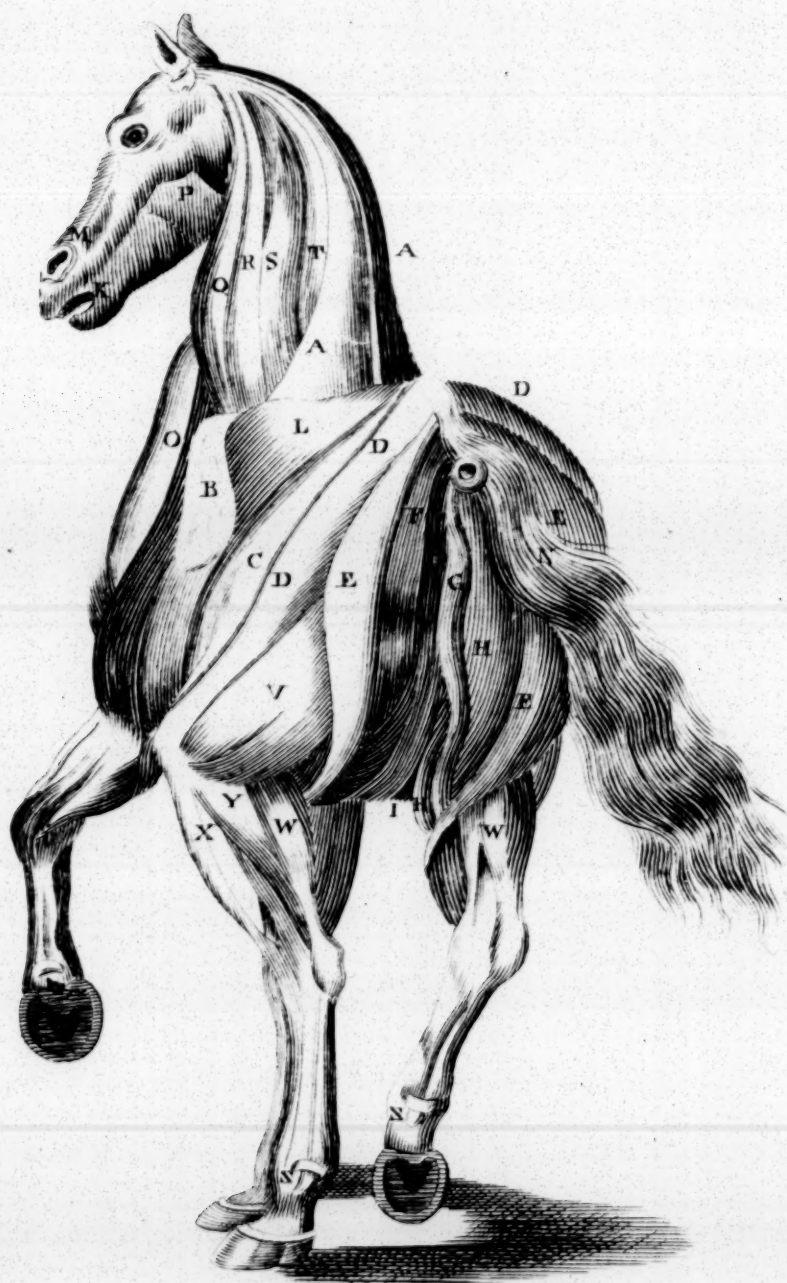
The pasterns and coffin-joint are likewise bended and extended by their proper muscles.

The benders are in number two, viz. the flexor longus, and flexor brevis. The first arises from the upper and hinder part of the leg-bone, and descends on the inner side of the hoof, down the instep-bone and pasterns, into the coffin-joint. The second takes its origin from the inside of the heel-bone, a little below the hock, and has the same insertion with the former. These bend the pasterns and coffin-joint backward.

The extenders are also two, the first called *extensor longus*, and the other *extensor brevis*; the one rising from the inner side of the shank, just under the stifle, is inserted into the fore and upper part of the coffin-joint. The other rising from the fore part of the annular ligament, that binds about the instep-joint, and descending under the former, has the same insertion. These two extend the pasterns and coffin-joint, by drawing them forward.

T A B L E





*A Representation of the Hind View of an Horse.
with the Muscles. (see Table II)*

T A B L E II.

Represents the hind Part of a Horse with his Muscles.

- A. The cucullaris, or monk's hood.
- B. The edge of the deltoides of the thigh.
- C. The glutæus minor, or lesser buttock-muscle.
- D. The glutæus medius.
- E. The glutæus major, or greater buttock-muscle.
- F. The biceps.
- G. The feminervosus of both legs.
- H. The lividus, or pectinalis of both hind-legs.
- I. The femimembranosus.
- K. The orbicularis, or orbicular muscle of the lips.
- L. Part of the longissimus dorsi.
- M. The circular muscle of the nose.
- N. The sphinctre of the fundament.
- O. The mastoides.
- P. The manforius of the cheeks.
- Q. The triangularis.
- R. The complexus, or trigeminus.
- S. The transversalis colli.
- T. The spinatus colli.
- V. The vastus externus.
- W. The gastrocnemius externus.
- X. The peronæus anticus.
- Y. The peronæus posticus.

S E C T. XII.

THE INVESTITURE AND TEGUMENTS OF THE
LOWER BELLY.

ALL that cavity which is below the midriff, encompassed by the short ribs, is the lower belly, the point of the breast-bone, loins, haunch-bone, and share-bone, and is filled with guts, and other entrails.

The proper teguments of the lower belly are the muscles, and the membrane which lies under them, called the *peritonæum*.

The muscles are of different shapes and figures, according to their several uses. These on the lower belly are divided into five pair, the uppermost are called the *oblique descending* muscles, and derive their origin from the sides of the breast-bone, the points of some of the lowermost ribs, where they resemble the teeth of a saw; from the tips of the cross-processes of the joinings of the rack-bone in the loins, and run sloping downwards into the white line, which is only a tendinous substance, formed by the endings of such of those muscles as meet and are determined in it, and reaches from the point of the sword-like gristle of the breast-bone, as low as the share-bone, dividing the lower belly in the middle. These two muscles have their insertion from below the navel downwards, to the end of that line:

The

The next are the oblique ascending pair. They rise from the upper part of the haunch-bone, and from the processes of the vertebræ of the loins and os sacrum, and taking a contrary course to these above described, they are inserted partly on the ends of the short-ribs, and partly on the white line, from the point of the breast-bone down to the navel. Their action is different from the former; for as those draw the lower part of the belly sideways, toward the breast, from whence they arise, so these draw down the chest somewhat sloping toward the loins.

The third pair are called the *recti*, or straight muscles, because their fibres run in a straight line from their origin, at the sides of the above-mentioned gristle, and the ends of the bastard-ribs to the share-bone, where they are inserted. There are in these, several tendinous interstices, which are the cause why some anatomists have divided them into divers muscles. They shorten the belly, by drawing the breast and share-bone toward each other.

The fourth pair are called the *pyramidal*, from the resemblance they bear to a pyramid, being broad at bottom, and growing gradually narrower towards the top. They seem to be derived from the straight muscles, and are assisting to them in contracting the belly:

The last are the transverse, or cross muscles, which have their origin from the lowermost bastard ribs on each side, from the transverse processes of the joints, or vertebræ of the loins and haunch-

bones, from whence,* running across the belly, they are inserted in the white line.

Besides that these muscles are a cover and support to the lower belly, they have not only their particular offices, but act in concert with each other, and give their mutual assistance in compressing the guts to the expulsion of their excrements.

Underneath the muscles lies the peritonæum, which is the next proper tegument of the guts. It is a double membrane of an oval figure, and is thought to derive its origin from that which involves the pith of the loins; its inside is very smooth, and lined with a sort of mucus, which proceeds from the guts, over which it is spread. From this membrane all the lower parts of the belly are furnished, either with their common or proper membranes. It has ligaments, whereby it helps to bind all the guts in their proper situation, that no violent motion may displace them; it also affords a strong ligament to the liver, and is a great support to a vast number of small vessels, which would either be broke or twisted in so long a course, were they not preserved within its duplicature.

The caul seems to be a proper envelopment, or cover for the guts, being in most animals spread all over them; though in a horse it is often seen to lie forward in wrinkles, which may be occasioned by his violent labour. It is in figure like a purse-net, being double, and open at top, but knit together towards the bottom. It adheres

adheres to the lower part of the stomach, and likewise to the spleen, and hollow sides of the liver. By its under-side it is fastened to that part of the gut colon, which lies under the stomach lengthways, and likewise to the sweetbread, and beginning of the small guts.

As the caul has plenty of fat, it not only serves to keep the bottom of the stomach and most of the guts moist, but also to cherish them with its warmth. And besides this, it has likewise a farther use, viz. to sustain a vast number of branches of vessels which pass between its membranes to the stomach, spleen, and guts, &c.

S E C T. XIII.

OF THE GULLET, STOMACH, GUTS, AND MESENTERY.

THOUGH all the gullet is not contained in the lower belly, yet as it is an appendage to the stomach, and the funnel through which every thing passes into it, a description of it cannot be so proper any where else, as in this place.

It is hollow and round, beginning at the root of the tongue, behind the head of the wind-pipe, under which it passeth, turning a little to the right, to give way to the great artery; afterwards, inclining to the left, it passes through the midriff,

midriff, and is inserted into the stomach towards its left side.

It consists of three coats or cases; the outermost seems to come from the pleura, &c. the middlemost is muscular and thick, consisting of two ranks of fleshy fibres ascending and descending obliquely across one another. The innermost is membranous, with straight fibres only; its veins communicate with those on the breast and neck, as do also its arteries. At its beginning it has two large glands or kernels, which separate a moisture to keep its inside glib, to facilitate the passage of the food, &c. Where it is inserted in the stomach, it is composed of a pretty thick substance, made up of circular and fleshy fibres, whereby it contracts and dilates itself to give way to the aliment, or shut up the stomach at pleasure. This is called the left, or upper orifice of the stomach; and that whereby it discharges itself into the duodenum, its right or lower orifice.

The stomach is round, and somewhat long, resembling a bag-pipe, but more capacious on the left side than the right; its magnitude is, generally speaking, more or less, according to the size of the horse. It is also composed of three cases, the outermost of which seems to rise from the peritonæum; the second is muscular and fleshy, and the last a continuation of the innermost coat of the gullet.

It has arteries from the cæliacal branch of the aorta, and veins from the splenic and the gastrics,

gastrics, a vein common to its left side and the caul, and one common to the caul and the right side from the mesenterics; and lastly, the pyloria, which comes from the porta.

It has branches from the recurrent nerves, which being exceeding numerous, are the occasion of its being so very susceptible of hunger, and all other sensations.

The use of the stomach is to concoct and digest the aliment, so as to render it fit for nourishment; and this is performed chiefly by its muscular motion, which is manifest from its structure, and the power it has of contracting itself into those rugæ, which we discover in it when it is empty.

After the stomach proceed the guts, which, according to computation, are in number six, viz. the small gut, the cæcum, or blind gut, the three colons, and the straight gut.

The small gut (which in a man is divided into three, viz. the duodenum, jejenum, and ilion, from its several circumvolutions) is, in a horse, reckoned to be about twenty-six yards in length; and is, in all its turnings, fastened to the mesentery. The stomach empties its aliment into this gut, which is furnished with an infinite number of milky vessels, called *laeteals*, that receive the finer portion of the aliment; which being conveyed by these little conduits, across the mesentery, to one common receptacle, ascend upwards along the spine, through a large channel, which is called the *thoracic duct*; and from thence into
the

the veins, and is incorporated with the blood. The coarser part of the food, by a peristaltic or vermicular motion, which is common to all the guts, falls downward, and is discharged in excrement. There are in this gut, besides the vessels it has in common with the rest, two ducts which open into it; the one from the liver, and the other from the sweet-bread, each of which sends in a juice that contributes to the refinement of the aliment, &c.

The next is the blind gut, which has but one passage for the excrements, so that they are forced to return back the same way they went in.

The three colons (which in man are but one continued gut) are next the blind gut; they are divided into three guts, by two narrow necks of about half a yard in length. This gut is drawn up into many purses, or cells, by two ligaments, one of which runs along the upper side, and another along the under side, which, with the assistance of a valve at its beginning, hinder the excrements either from returning back into the small guts, or falling too soon downward, before the chyle or milky substance is sufficiently prepared, and sent off into its proper vessels. The cæcum seems also to be instead of a valve, to hinder the aliment or chyle from falling too soon downward into the colon; for if it was not in some measure obstructed, and detained in its passage through these large conduits, the body could never be sufficiently supplied with nourishment. The first of these colons is about a yard and a half in length;

length; the second about a yard, and that which joins to the rectum, or streight gut, near six yards long.

The streight gut, which goes streight downward to the fundament, is not above half a yard in length; its coats are thicker than those above described, its middlemost being very fleshy and muscular. At its extremity there is a sphinctre, which dilates itself for the evacuation of the excrements, and keeps it contracted, or shut up at all other times.

There is on the inside of the whole guts; a mucus, or slimy matter, which preserves them from being hurt; either by the hardness of the excrements, or the pungency of any sharp corrosive humours; for they being, as most other membranous substances, full of branches of nerves, would be in perpetual pain, had not nature taken a special care of them.

The mesentery, which in the next place comes properly to be described, is so called from its situation in the middle of the guts. Its rise is from the third rack-bone of the loins, and is composed of three membranes, the middlemost being very full of kernels or glands, which; when they happen to be over-much dilated, obstruct the passage of the chyle, which runs across its membranes; and the body being thereby deprived of its nourishment, becomes lean and emaciate; and at length falls into irrecoverable diseases.

At its rise it is gathered together in a vast many plaits or folds, which being open to that part of it to which the guts adhere, makes them lie in

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those

those circumvolutions and turnings in which we always observe them; and this seems absolutely necessary, because if they were not tied in such a manner, but let loose, the excrements would either pass too quickly through them, or else be wholly obstructed, by reason they would be apt to twist and entangle one with another.

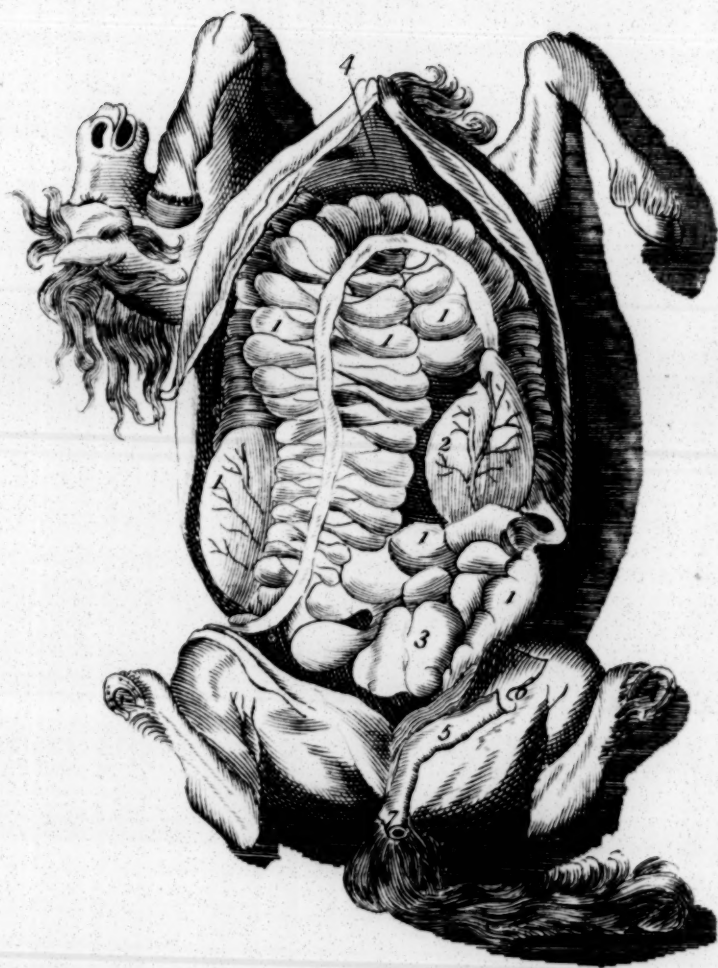
In a horse the mesentery is usually above a quarter of a yard in breadth, and besides the milky vessels which are sustained by it, it has abundance of lymphatics, which serve to dilute the chyle. Its veins are branches of the porta, and its arteries the meseraic or mesenteric; as to its use, it is sufficiently demonstrable, from what has been already said concerning it and the guts.

T A B L E III.

Represents the Guts, as they appear after the Caul is taken away.

- A. Represents the gut colon, with all its circumvolutions and folds, with the small necks, which divide it into three parts; as also the space which it takes up in the lower belly.
- B. The cæcum, or blind gut.
- C. The rectum, or streight gut.
- D. Part of the diaphragm, or midriff.
- E. The yard.
- F. The glans, or nut.
- G. The fundament, with its sphinctre.

SECT.



*A Representation of the Intestines, the
Caul being taken off. (See table III.)*

*The Reader is requested to substitute A B C D E F G,
in the Places of 1 2 3 4 5 6 7, agreeable to Page 74.*



S E C T. XII.

OF THE PORUS BILIARIUS, OR GALL-PIPE, WITH
THE SPLEEN, PANCREAS, AND LIVER.

THE spleen, or milt, is a soft spongy substance, of a black livid complexion, a triangular shape, but somewhat long, situated on the left side opposite to the liver; it adheres both to the midriff and stomach. It is covered with a membrane from the peritonæum, which, because of its soft spongy substance, is considerably thick. Its veins are a branch of the porta; its arteries spring from the left cæliac branch, and its nerves from the left intercostal. It has also lymphatic vessels, which glide along the caul to the receptacle of the chyle. There is no part of the body wherein anatomists have differed more, than concerning the use of the spleen. To pass by a great many various opinions about it, it has been thought to give an asperity and sourishness to the blood which comes into it; and as that blood is conveyed from thence into the liver, it was believed to be in order to engender, or keep up, a moderate ferment in it; but because several animals have lived after it has been cut out, and been more brisk than when they had it, it is not therefore improbable, but it has some other use not yet known, especially since the modern discoveries allow of no such ferment. It is, however, certain, that it serves to cherish and support

the left side of the stomach, as the liver does the right to further digestion.

The *sweet-bread*, or *pancreas*, so called, because it is altogether fleshy, is situated under the back part of the stomach, and lies across the belly. It is a white and soft glandular substance, stored plentifully with single kernels over its surface, which are somewhat prominent, and of a reddish colour: it has its cover also from the peritonæum. Its arteries spring from the cæliacal, and its nerves from the intercostals; its reflux blood is sent into the liver, as that of the spleen. Besides, it has a passage into the first gut, a little below the stomach, which is called the pancreatic duct. The liquor which that duct discharges, is believed, in conjunction with the gall, to sweeten the chyle, to free it from all manner of impurities. This liquor seems chiefly to be derived from the little glands which are on its outside, there being a great many little pipes detached from them through all parts of it, to the above-mentioned duct. As for the farther uses of the sweet-bread, I shall only take notice, that as it lies across under the lower part of the stomach, it not only contributes to its warmth, but may help to keep it somewhat elevated, by which means its muscular action is not hindered, as it might probably be when full, if its weight was not supported.

The ancients believed the liver to be the chief instrument of sanguification; neither could they be much blamed for this opinion, it being agreeable to the first discoveries made in anatomy.

Its

Its substance is fleshy, somewhat resembling congealed blood. It is situated on the upper part of the lower belly, on the right side, under the short ribs. The liver of a horse has four lobes, which grasp the stomach, and keep it warm. It is tied by three ligaments, the chief of which is called its *suspensory*, and is a production of the peritonæum; it is very strong and nervous, arising from the midriff towards its right side, and is inserted in the thickest part thereof, where its uppermost cover, expanding itself, forms the proper tegument of the liver; another ligament fixed to the point of the breast-bone, in conjunction with the first, keeps it suspended in such a manner that it can neither fall downward nor sideway. The umbilical vein, by which the fœtus is nourished, becomes its third ligament, which is very necessary in a horse, because it preserves the liver, in galloping or leaping, from falling forward, and bearing too hard upon the midriff.

Its veins are the principal branches of the cava, or hollow vein, whose other branches receive all the blood which is brought in by the porta, forming the hollow vein above-mentioned, by a combination of all their roots into one great trunk. The *porta* (so called from its office) is formed from the branches which have been already observed to come from the spleen, sweet-bread, and guts, &c. Its arteries are from the cæliac, and its nerves from the intercostals, &c. Its lymphatic vessels take the same course as those of the spleen and pancreas.

Though

Though a horse has no gall-bladder, yet he wants not sufficient store of gall, which is separated by its proper vessels, and conveyed directly into its duct, which opens into the first gut, about ten or twelve inches below the undermost orifice of the stomach. This liquor is separated from the blood, which is imported to the liver from the spleen, &c. and serves, in conjunction with the pancreatic juice, for the purposes above-mentioned.

The liver is of great use, as it is a constant receptacle for all the blood which is returned from the spleen, pancreas, and guts, where it no doubt undergoes such changes and alterations, by the separation of the gall, as are necessary before it goes into the heart, to fit it for a fresh progress into all parts of the body. It is, moreover, exceeding helpful to the stomach, as it not only cherishes it by its warmth, but also keeps it steady, and preserves it from any counter action that might mar its muscular motion, and hinder digestion.

S E C T. XIII.

OF THE KIDNEYS, URETERS, AND BLADDER.

THE kidneys are seated in the loins, behind the stomach and guts, the right under the liver, and left under the spleen. They are seldom alike. In a horse, that on the right side is somewhat triangular, and the other is much broader
below

below than at top, not unlike the figure of an egg.

They are nourished by their own proper vessels, which are called the *emulgents*, the artery springing directly from the aorta, and the vein having as near a communication with the cava. Their nerves spring from the same branch of the intercostal that goes to the stomach, and that is the reason why the least disorder in the kidneys, ureters, or bladder, causes such sudden sickness.

The substance of the kidneys is chiefly glandular, having, on the outside, a vast number of little kernels, which separate the stale from the blood, and from them proceed an equal number of little pipes, or conduits, which run from the circumference towards the centre, like the spokes of a wheel. By these the urine is conveyed into other glands, which are called the *carunculæ papillares*, from the resemblance they bear to teats, which, in a horse, are as big as small field beans; and when it has undergone a farther change in these glands, it is emptied into a cavity called the *pelvis*, or basin, which is in the centre of each kidney. This being a membranous substance, is no other than an expansion of the ureters, which are two canulas, or pipes, from which the urine passes from their respective kidneys to the bladder.

The ureters keep not a straight course from the kidneys, but in form of the letter *f*; they enter into the back and lower part of the bladder, where, passing about an inch between its membranes, to prevent

prevent the return of the urine the same way, they are inserted near its sphinctre, or neck.

The bladder is seated in the lower part of the belly, within that circumference which is made by the loins, hip-bones, and share-bones. It is of an irregular shape, something in resemblance of a pear, composed, as the stomach and guts, of a treble coat, or skin, the outermost from the peritonæum, the middlemost muscular, the innermost very thin, and of an exquisite sense, having nerves both from the intercostals, and the vertebræ of the loins. Its veins and arteries are branches of the hypogastrics. The bladder is perforated, or bored, not only where the ureters enter into it, but also in its neck, to give passage to the urine which runs along the urethra, in order to its discharge out of the body. Its neck is composed of muscular and fleshy fibres, which form a sphinctre muscle, such as has been described belonging to the fundament, which opens and shuts at pleasure.

As for the capsulæ atrabiles, which some persons have called deputy-kidneys, because they are situated near the true kidneys, and somewhat resemble them.

We will not waste our reader's time about them, since anatomists have not as yet clearly determined their use.

S E C T. XIV.

OF THE PARTS OF GENERATION IN A HORSE
AND MARE.

THE yard being the most external of all parts administering to generation, I shall therefore begin with it. Its outward cover, or sheath, is nothing else but a production of the scarf-skin, hide, and fleshy pannicle, which are tied by an appendage, called the *frænum*, or bridle, which runs along the under side, in a narrow slip, almost to the root of the yard; so that the sheath folds back in several wrinkles, and gives full liberty to the yard, as often as it is extended and drawn.

The internal substance of the yard consists of two nervous bodies, which, as in man, make up the greatest part of its bulk. These two bodies are very spongy and open in a horse, and when dried are extremely light; but in a bullock, and some other animals, they are more compact and solid. They are composed of a great number of branches of veins, arteries, and nerves, which are variously interwoven one with another. On the under side, between these two cavernous bodies, runs the urethra, from the sphinctre of the bladder to the extremity of the glans or nut, which affords a passage both for the urine and seed.

The glans is an appendage to the yard. It is of a round figure, but very thin in proportion to what it is in man; it is not so cavernous as the yard,

but of a quicker sense, being the chief seat of pleasure in copulation.

The yard has two muscles on each side, towards its root. The first pair spring from the external process, or knob of the hip-bone, and help the yard in erection; the other two rise from the fundament, and are called the *dilators*, because they serve to open and widen it for the freer passage of the seed and urine. Its veins and arteries spring from the hypogastrics, and its nerves from the lower vertebral.

Next to the yard the testes, or stones, properly take place, because in them the seed is prepared. They are two glandular bodies, of an oval figure, situated under the root of the yard, hanging in a scrotum, or bag, which is no other than a production or continuation of the sheath above described. The stones have each a branch from the aorta, or great artery, which brings the blood directly from thence, not only for their nourishment, but for seed.

Their veins are branches of the cava, some of which open into the great trunk thereof, very near the emulgers, but not in the emulgers, as in men. These are called the *præparantia*, or preparing vessels, which, from the upper side of the stones, are curiously clasped and twined, like the tendrils of vines, and growing narrower, and uniting more together as they advance towards the belly, they are denominated by several names, as the *pyramidal body*, and *plexus pampiniformis*, &c. On the back part of each stone there is a longish body, somewhat white and round, called the *parastatæ*, or *epididimæ*; from each of these runs a large vessel, which empties itself into the seed-bladder,

bladder, situated on each side of the root of the yard, and on the inside of the share; these are called the *deferentia*, or the vessels which carry back the seed. Both the *deferentia* and the blood-vessels above described, are inclosed in a capsula, or sheath, which is a production of the peritonæum, proceeding from the lower belly on each side, which not only serves for this use, but forms the outermost cover of the stones, and is that which anatomists call the *tunica vaginalis*.

Each stone has a cremaster, or suspensory muscle, to draw them up in time of copulation, which, arising from the ligament of the share-bone, expands itself all round the inside of the *tunica vaginalis*, and forms their second coat. Besides these, the stones have an innermost coat or cover, which is thick and nervous, and not only contributes to their warmth, but is a great defence to their true substance, which consists of a very fine clue of vessels, made up of veins, arteries, and nerves, and formed out of those above described; so that the liquor passing through so many circumvolutions and turnings in vessels which are infinitely small, it is thereby so often strained and refined, till it becomes fit to enter into the parastatæ, where, probably undergoing some farther degrees of refinement, it is completely formed into seed.

There are several glandular bodies situated at the root of the yard, immediately before the seed-bladders, and are therefore called *prostates*. These separate a clear slimy matter, which being forced out in time of copulation, no doubt preserves the urinary passage from the pungency of the more spirituous

parts of the feed; and may at other times, in conjunction with the mucus which is in that passage, defend it from the heat and sharpness of urine, sand, or other gritty matter, sent into it from the bladder.

Having given this short account of the genitals of a horse, we come, in the next place, to those of a mare, which differ from the other, not only as they are all contained within the cavity of the belly, but likewise as to their figure and use.

A mare has two testes, or stones, as well as the horse, which lie backward on each side under the loins; and these are nourished with arteries, which spring from the aorta, and are more in number than those of a horse.

The testicles of a mare are not as those of the horse, oval and round, but flat like a garden bean. They have their common and proper teguments, and in their inner substance several ovaria, or egg-beds, which are receptacles for the male-feed.

Somewhat forward and below these ovaria, is seated the womb, or matrix, between the neck of the bladder and the straight gut, where it is firmly tied in its place by two pair of ligaments. It is differently shaped from that of a woman, being divided by its cornua, or horns, whose hollow round insertion seems to compose its fundus, or bottom. Out of these horns arise the tubæ, or trumpets. At their exit they are very small, but in their progress, grow wider, and somewhat contorted. Towards their extremity, they are again contracted into a small orifice, or mouth, with a jagged membrane all round their circumference, not unlike the husk of a rose. The use of these tubes is to convey the feed
from

from the womb to the ovaria, where the impregnation first begins, and also to afford it a passage back into the same place.

The substance of the womb is fleshy, inclosed within two membranes, which are nervous and sensible. It has a great number of blood-vessels from the hypogastrics, which, after conception, enlarge it like a sponge, and fill it with blood, not only that it may become a proper bed for the fœtus to lie in, but also to supply it with sufficient nourishment.

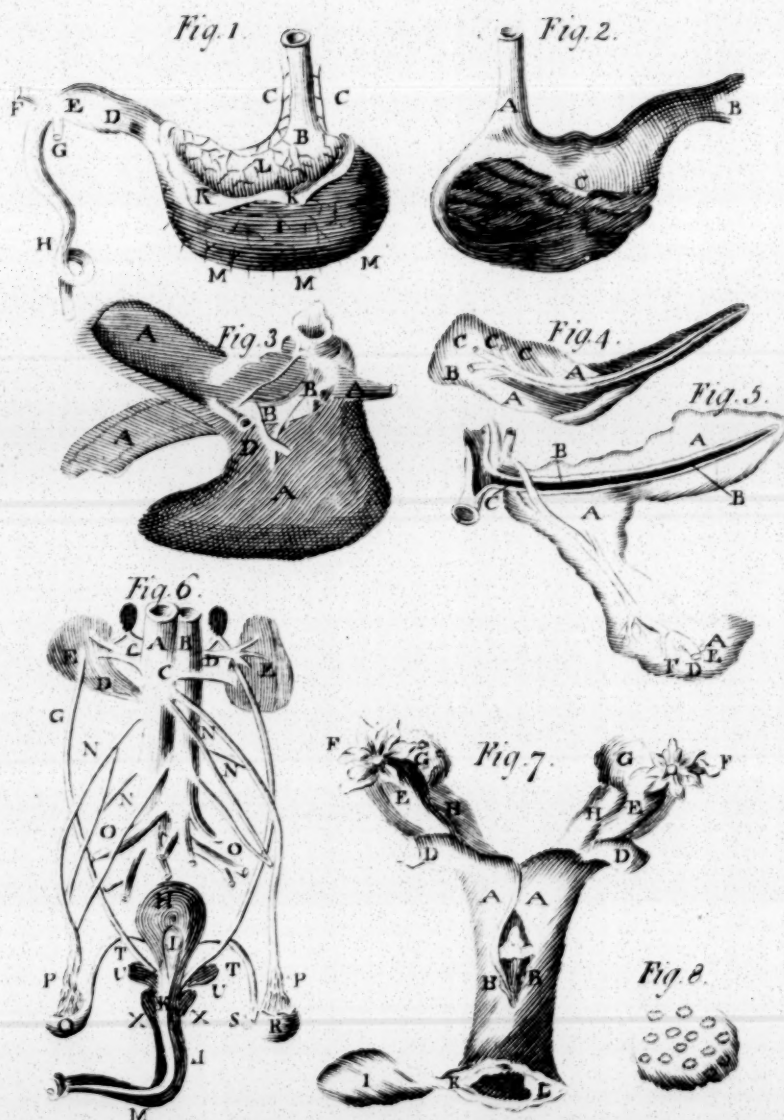
The vagina, or sheath, is an appendage to the womb, being only a production of its membranes; it is that which forms the long passage reaching from the pudenda, or privities. On its inside are several rugæ and caruncles; the use of which are to stimulate the horse to a vigorous discharge of his seed. Besides these, there are the nymphæ, just within the labia, and the clitoris more backward, which not only serve to the same purpose, but to augment the pleasures of the mare; the clitoris being of a spongy body, answering to the glans, or extremity of the horse's yard, and endued with the same sensation. The inside of that passage has a thin mucus from its glans, which is not only a defence to it, but likewise serves to facilitate the passage of the horse's yard, which being an extremely sensible part, would otherwise be hurt by its unevenness. About an inch within the lips, on the upper side, there is a small passage, by which the urine is discharged from the bladder, into the extremity of the sheath. And as the bladder has its sphinctre to shut up its neck when the urine is drained from it, so the nymphæ do the same office in the vagina; and when
they

they are contracted, or rather closed together, form the fissure or chink. They are also of farther use to prevent flies, dirt, or any extraneous matter from getting within it.

The udder is another part peculiar to the mare, being that from whence the foal receives its first nourishment after its birth. Its substance is partly fat, and partly glandular. By its glands the milk is separated from the blood, which is brought into it by the hypogastric arteries, and carried along in little pipes to two glands, which are pretty large, seated at the root of each pap, where undergoing its last refinement, it is discharged first into its proper vesicles, and then into the paps which convey it to the foal.

Though the udder of a mare seems to be one undivided substance, yet, as in all other animals, it is truly separated; the vessels of one pap having no immediate communication with the vessels of the other. So that if a mare should have one side of her udder hurt, the foal may still be nourished by the other.

It may perhaps be expected that we should put an end to this chapter, by giving some account of the conception, and the manner of the foal's being nourished in the womb; and likewise that we should take some notice of the male-feed, which, by most modern anatomists, is believed to be full of animalcula, or little moving creatures, which, they say, by the help of a microscope, may be plainly discerned in that liquor. But as these things would not only be too tedious, but of more curiosity than use to the
farrier,



*These Figures are a Representation of the
Stomach & other Parts in the lower Belly.*

(See Table . IV)

farrier; and as anatomists differ among themselves in many circumstances concerning them; and moreover as it would, besides a bare knowledge of the structure of the parts, require in the reader a competent skill in natural philosophy, to understand those disputes fully, we will not therefore detain him about them, but proceed to a description of the middle ventre, or chest, being that which properly comes next under consideration.

T A B L E IV.

Represents the Stomach, together with several other Parts contained in the lower Belly.

Fig. 1. *Sheweth the Stomach taken out of the Body.*

- A. The gullet.
- B. The upper orifice of the stomach.
- C. Two nerves dispersed through the upper part of the stomach.
- D. The plorus, or lower orifice of the stomach.
- E. Its entrance into the small gut.
- F. The entrance of the porus biliaris, or gall-passage, into the beginning of the final gut.
- G. The entrance of the pancreatic duct into the same gut.
- H. Part of the first gut.

I. The

- I. The outside of the stomach, with the ramifications, or the branchings of the blood-vessels upon it.
- K. The outermost coat of the stomach, turned back.
- L. Its middle coat, with the ramifications of the nerves upon it.
- M. The gastric vessels reinserted into the bottom of the stomach.

Fig. 2. *Sheweth the Stomach turned inside out.*

- A. The left orifice, or mouth of the stomach.
- B. The right or lower orifice.
- C. The wrinkles and folds of its muscular coat.

Fig. 3. *Shews the hollow side of the Liver.*

- A. Its four lobes.
- B. The vena porta, with its egress out of the hollow side of the liver, together with a nerve of the sixth pair creeping over it.
- C. The trunk of the vena cava, or hollow vein.
- D. The porus biliaris, or gall-passage.
- E. A branch of the cæliac artery.

Fig. 4. *Represents the Spleen, with its Vessels.*

- A. The concave, or hollow side of the spleen.
- B. The splenic vein.
- C. The splenic artery.

Fig. 5. *Shews the Pancreas or Sweetbread freed from its Membrane and Part of its Substance, the better to shew the Course of its Vessels.*

- A. The body of the pancreas dissected.
- B. The pancreatic duct.
- C. The orifice of the said passage into the first gut.
- D. An artery which is dispersed through its substance.
- E. A vein which accompanies the said artery.
- F. A branch of the intercostal nerves.

Fig. 6. *Shews the Kidneys, Ureters, and Bladder, with the Parts of Generation in a Horse.*

- A. The descending trunk of the hollow vein.
- B. The descending trunk of the great artery.
- C. The emulgent veins arising out of the hollow vein.
- D. The emulgent arteries springing from the great artery.
- E. The kidneys.
- F. The deputy-kidneys.
- G. The ureters.
- H. The bladder.
- I. Its inside.
- K. Its neck, where it opens into the urethra.
- L. The cavernous body of the yard.
- M. The urethra.
- N. The seed-preparing veins, commonly so called:

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O. The

- O. The preparing arteries.
- P. The pyramidal bodies, or corpora varicosa.
- Q. The right testicle, with its innermost coat.
- R. The left, divested of its coats.
- S. The epididimis of the left testicle;
- T. The deferent vessels.
- U. The seed-bladders.
- X. The prostates.

Fig. 7. *Represents the Womb of a Mare, with its Horns and Tubes, &c.*

- A. The bottom of the womb.
- B. The vagina, or sheath.
- C. The sheath cut open to shew the clitoris.
- D. The cornua, or horns of the womb.
- E. The tubæ, or trumpets.
- F. Their fimbria, or jagged orifices.
- G. The ovaria, or stones of a mare.
- H. The broad ligaments.
- I. The bladder.
- K. Its insertion into the sheath, near its orifice.
- L. The outward orifice of the sheath.

Fig. 8. *Represents one of the Ovaria, or Testicles, taken off, and cut through the Middle, to shew the Eggs more plain.*

S E C T. XV.

OF THE MIDDLE VENTRE, OR CHEST, AND ITS
PROPER CONTAINING VESSELS.

BY the chest is to be understood all that cavity which is circumscribed above the collar bones, and below the midriff, before the breast-bone, behind and on both sides by the back-bone and ribs.

Its containing parts are the muscles, bones, pleura, and mediastinum.

The first thing that appears after the common teguments are removed, being the muscles, we shall therefore begin with them, and at the same time only take notice of the intercostals, leaving the rest to another opportunity.

The intercostals compose all the flesh that we observe to fill up the spaces between the ribs; they are in number sixty-four, viz. thirty-two on each side; and are distinguished by the external and internal, or the uppermost and lowermost.

The external take their rise from the lower part of the upper ribs, and end in the upper part of the lower; and the internal from the upper part of the lower ribs, ending in the lower part of the upper; by which means they not only differ in their origins and insertions, but also in the course of their fibres, which run directly across each other, in form of the letter X; so that their action is also contrary. The external extending the chest, by raising the ribs, and drawing them backward, help to make room for the air in inspi-

ration, or taking in the breath; whereas the internal contract the breast, by drawing the ribs downward toward the breast-bone, for expiration, or expulsion of the air.

Next the muscles on the inside of the ribs, we observe the pleura. It is a double membrane which springs from the inside of the spine; and is believed, by some, to take its origin from the coats of the nerves. It is perforated in several places, for the ingress and regress of the vessels which go from the heart to the head, and the veins which return from thence; as also for such as go downward to the lower belly and extremities, and those which return from thence to the heart.

Its veins are from the vena sine pari, and upper intercostals; its arteries from the upper intercostal, and its nerves from between the vertebræ of the back.

As the peritonæum furnishes proper teguments for all the viscera in the lower belly, so this performs the same office to all the parts contained in the chest, which it involves on all sides. It is likewise a defence to the intercostal vessels which run between its membranes, preserving them from being grated and hurt by the ribs.

The diaphragm, or midriff, which divides the chest from the lower belly, comes next in order. It is a thin substance, but muscular and fleshy, arising, according to some, from its circumference; and according to others, from the fleshy productions which spring from the vertebræ of the loins. Its middle is nervous, and its two sides fleshy; the direction of its fibres are from its
back

back and innermost part, or nervous body, branching out on each side to its circumference towards the ribs. It has several perforations, or passages for the nerves and large blood-vessels, which retain to and from the lower belly, as also a large one for the gullet.

It has veins from the trunk of the cava, with some twigs from the vena adiposa. Its arteries are from the aorta: its proper nerves are two, proceeding from the spinal marrow at the third or fourth joinings of the rack-bones of the neck, being in their course sustained by the mediastinum. These nerves enter in at its centre, and disperse themselves through its whole substance.

Its chief use is in respiration, and is the principal muscle that assists in that action, dilating and contracting itself, as the ribs are dilated and contracted. It is also useful in assisting the peristaltic motion of the guts, whereby the chyle is forwarded into its vessels, and the excrements to a discharge. It is, moreover, useful to divide the lower belly from the chest, as has been observed.

As the diaphragm divides the lower belly from the chest, so the mediastinum divides the chest in the middle. It is a double membrane, arising from the pleura, or rib-coat, where, beginning at the breast-bone, it holds a direct course towards the back. Near the back and the breast, this membrane is united for a little way; but in the middle it is separated so wide as to contain the heart and its pericardium, or bag. It is like the pleura, from whence it proceeds very smooth on its outside towards the lungs, but somewhat rough
towards

towards the heart, by reason the pericardium adheres to it by several small membranous filaments.

It has veins from the phrenica, or midriff-vein, and from the vena fine pari; it has also one from the subclavian, which is proper to it, called the *mediastina*. Its arteries spring from the phrenica, and its nerves are detached from that pair which descend by it to the midriff.

Besides its use in dividing the breast, it preserves the heart from being hurt in its motion by the bony sides of the chest. It is farther useful to sustain the vessels which take their course through it, and by its being knit to the midriff, preserves that muscle from being drawn too much downward by the weight of the liver, whose suspensory ligament is fixed to it.

S E C T. XVI.

OF THE HEART AND PERICARDIUM, &c.

THE pericardium is that bag in which the heart is inclosed, as in a purse. It rises from the basis or upper part of the heart, from the outer coats of the great vessels, which spring originally from the pleura. It is of a middle substance, neither very hard, so as to hurt the lungs, nor yet so soft as to be itself easily injured by the motion of the heart. It is perforated

five

five places, viz. on the right side for the ascending trunk of the cava, which, coming from the liver, enters the right ventricle, and by the subclavian vein, which descends by the channel-bones into the same ventricle; and thirdly, by the pulmonary artery, which goes out of the right ventricle into the lungs, and enters the left ventricle. And lastly, for the great artery that passes out of the said ventricle.

Its veins are from the phrenic and axillaries; its arteries are so small, that they are not very discernible; its nerves come from the par vagum.

The use of this purse, or bag, is to cover the heart, and be a defence to it, to contain a moisture not only to keep it glib and easy in its motion, but also cool. There are various opinions concerning this liquor of the pericardium, and from whence it is derived, but we will not give the reader any trouble by reciting them, but hasten to the heart itself.

The heart is the principal fountain which sends the blood and nourishment into all parts of the body, and is wonderfully suited in every respect for that purpose.

It is situated in the midst of the chest, where it is encompassed by the lobes of the lungs, having its point inclining to the left side. It is in shape not very different from what it is in most other animals; only in a horse it does not grow so gradually narrow towards its point, as in some, nor so broad in proportion at its basis, or root.

Its substance is fleshy, and very solid, that it may the better endure the perpetuity of motion,
and

and expel the blood with more force to all parts of the body. It is for that purpose composed of muscular and fleshy fibres, which, towards the top, take their direction spirally, like the contortions of a snail's shell.

It is said to have a two-fold motion, which, by anatomists, is called its *systole* and *diastole*; or, in other words, its contraction, when its top is drawn towards its basis, or bottom, for the expulsion of the blood into the arteries, and its dilation when it is filled with blood from the veins. As often as we feel the pulse beat, so often is the heart contracted, it being the contraction, or systole of the heart, which communicates that vibration, or pulsation, to all the arteries.

The heart, besides its pericardium above-described, has two membranes, one that covers all its outside, which it derives from the outer coat of the great artery, and another which lines it through all its inside, which proceeds from the inner coat of the said vessel. It is stored with fat towards its bottom, which keeps it moist and glib, as the water in the pericardium does the rest of its substance.

Besides the large vessels which empty themselves into it, and those which are constantly fed by it, it has a vein and two arteries, which are proper to it, and by which its substance is chiefly nourished. These being wove all round it like a garland, are therefore called *coronæ*. It has also many small branches of nerves, which spring from
the

the eight pair, and send forth other small branches to the pericardium.

Within the heart there are two ventricles; or caverns, divided into the right and left, by a fleshy partition. The right of these ventricles is much the widest, but not quite so long as the left; neither is it of so compact a substance, or of so great strength, the septum, or wall, being peculiar to the left. The reason of this difference seems to be, because the right ventricle sends the blood only into the lungs by the pulmonary artery, whereas the left detaches it into all parts of the body. The inside of these ventricles is very curiously made up, and interlined with several fleshy pillars, somewhat resembling the small Gothic columns; the use of which seems to be chiefly for the better communication of the blood and chyle, being, in every contraction, wrung through them, as through a sieve.

The large vessels, which we have already observed to retain to the heart, and likewise those by which it is constantly emptied; have each of them valves, for the better performance of their several functions, viz. the vena cava, which enters into the right ventricle, has three, called *tricuspidæ*, from their triangular figure. They are placed at the bottom of the heart, where the said veins enter, and pointing inward, a free admittance is given to the blood, which goes into the heart, but none of it can return the same way. The vena arteriosa, or pulmonary artery, which carries the blood from the same ventricle to the lungs, has also three valves, called *sigmoideæ*, from the resemblance

blance they bear to the old Greek sigma; these look from within outward, by which means they hinder the blood from returning back again into the heart.

To the arteria venosa, or pulmonary vein, which returns the blood from the lungs into the left ventricle, belong two valves, called *mitrales*, from the resemblance they bear to a mitre. These have the same office as those of the cava above described. And the three valves of the aorta, or great artery, called *semilunares*, from their being fashioned like so many half-moons, have the same office as those of arteria pulmonaris.

Lastly, there belong also to the heart two auricles, or earlets, from the resemblance they bear to ears, being seated like two purses on each side of its basis. These earlets have their diastole and systole, like unto the heart, only with this difference, that when the heart is contracted, the earlets are dilated; and when the heart is dilated, the earlets are contracted; the reason is, because they receive the blood from the cava and pulmonary veins, so that as they empty themselves into the heart, it forthwith becomes dilated; and when the heart is contracted, they must of consequence be filled, the course of the venal blood being, at that interval, intercepted.

The use of the auricles is to measure out the blood in certain proportions, before it enters the heart, lest, rushing in with too great an impetuosity, it might not only cause the valves to be violated, but occasion a suffocation in the heart itself,

itself, whereby the vital faculty might be quite destroyed.

S E C T. XVII.

OF THE WINDPIPE AND LUNGS.

THE lungs are the chief instruments of breathing, they fill up the greatest part of the cavity of the chest, being divided into two lobes, one of which lie on the right side of the mediastinum, and the other on the left.

They are composed of the various ramifications, or branchings of the veins, arteries, and nerves, together with the windpipe, the extremity of whose branches are very finely wove together, so as to form an infinite number of little vesicles, or air-bladders, resembling small grapes when they are extended, but not very perceivable at any other time. When an animal sucks in the air, these little vesiculæ, or bladders, are then dilated and full, and when the air is emitted, as in expiration, they become empty.

The windpipe, whose branches make up a great part of the substance of the lungs, is that great channel, which beginning at the root of the tongue, descends down the throat, and as soon as it reaches the lungs, divides itself into two large branches, one to each lobe. These send off a great many

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branches,

branches, which detach an infinite number of other branches that reach into all parts, and whose extremities open into the vesiculæ, or bladders, above described. This pipe is called the *trachea*, or *aspera arteria*, from its roughness, which name it obtains from the throttle to the lungs; but those branches which it sends off into each lobe, are termed its *bronchia*.

It is composed of a double membrane, which incloses its circular rings, the innermost of which being muscular, made up of streight and oblique fibres, it thereby contracts and dilates itself in the action of breathing. These rings do not quite encompass the trachea, or aspera arteria, but leave a fourth part of the circle wanting, lest they should hurt the gullet whereon it lies, and occasion pain in swallowing; but after it divides itself into its bronchia, they go quite round every branch of it, so far as is perceivable to the naked eye; and doubtless hold the same form where its branches are the most minute and small. These rings being, in a great measure, cartilaginous, endue the whole windpipe, and all its branches, with a sort of elasticity, or spring, whereby it acts in concert with its membranous and muscular parts.

The blood vessels, which also compose a great part of the bulk of the lungs, are partly a branch from the great artery, but principally the pulmonary artery and vein. These veins and arteries have frequent inosculations, or communications one with another, by which means they become curiously interwoven towards those vesiculæ, or
air-



air-bladders above mentioned, which kind of structure is, by most anatomists, believed to be to the end that every minute particle of the blood in those parts, may be impregnated with air.

There are, besides these, abundance of lymphatics, which attend on the veins and arteries through the whole surface of the lungs, to receive the superfluous moisture separated by the glands, which they afterwards discharge into the thoracic duct. The lungs have also nerves, which spring from the recurrent branches of the wandering pair. These accompany the blood-vessels through their whole substance, and are divided into innumerable branches.

As to the use of the lungs, it is evident, from what has been already said, that they are the chief organs of respiration, being, in every respect, suited to receive the air, which is the proper element for all quadrupeds, as well as man, to breathe in. And as the windpipe, with all its branches, is made up of cartilaginous rings, which act in concert with its muscular coat, it thereby becomes endued with a sort of elasticity, or spring, by which it is extended as often as the air is drawn in, and in expiration becomes again contracted. This sort of mechanism is plainly visible in the windpipe of any animal, which being drawn out to its full length, immediately gathers itself up, as soon as the force whereby it was stretched is removed. The elevation and depression of the chest is in like manner occasioned by the extension and contraction of the lungs; and as its
action

action is thus subservient to them in respiration, it seems also to be chiefly derived from them, so that the air may be properly termed the principal though not the immediate cause of that action also.

Now as we are sure the air is the immediate and principal cause of respiration, it would be to little purpose to spend time about the various opinions concerning that motion of the lungs, viz. whether it be natural or animal, as the philosophers term it, or whether, according to some, it be partly natural and partly animal; we shall only therefore observe, that although it is somewhat in our power to regulate that action, by drawing in more or less air at pleasure, yet we are very well satisfied no creature can imprison it in the lungs, or keep it out two minutes, without a manifest violence to nature; so that it seems to be chiefly natural, there being nothing in it voluntary, farther than that we can, in some measure, help ourselves in accidents which may happen to those parts, which cannot but occasion pain as often as the lungs and chest are extended or depressed, if we should let them have their full liberty.

But beside the use of the lungs in respiration, by the air which they perpetually draw in, they invigorate the blood, and render it more fit for the several functions of life. And this will appear reasonable, when we consider that the whole mass of blood takes its course through the lungs before it is detached into any other part of the
body;

body; so that during its progress there, it is not only purged from many of its thinner impurities, which visibly fly off from the mouth and nose in breathing, but also from its grosser parts, which by expectoration, are discharged through the pipes of the aspera arteria. And as the blood-vessels accompany the windpipe in all its branches, the blood itself is not only thought to be thereby cooled, but at its return is believed to give a moderate temperament to the heart, which, no doubt, must be very much heated by the perpetuity of its motion.

Having thus given a short account of the heart and pericardium, as also the lungs and windpipe, together with their several uses, we shall, before we leave this middle cavity, take some notice of that large kernel called the *thymus*. It is so called, from the resemblance it bears to a leaf of thyme in its shape, and is situated across the uppermost part of the breast, along the collar-bones, covering them on the inside.

Its use is to prevent the two large branches of the aorta and cava from being hurt by the sharp edges of these bones in their passage over them. And as it serves to this purpose chiefly (there being no vessels or excretory ducts visible in its substance) it is therefore much larger in foals than in grown horses, as it is indeed proportionally in all other young animals, because the older any creature grows, the coats of the blood-vessels become the more nervous and strong, and therefore are not in such danger of being abraded.

SECT.

S E C T. XVIII.

OF THE LARYNX AND PHARYNX, WITH THE
TONSILS, &c.

THOUGH these do not properly belong to the chest, yet as we have already treated of the gullet and windpipe, to which the larynx and pharynx are united, and as the one has communication with the lower ventre, and the other with the chest, we have therefore taken notice of them under this division, leaving those parts by which they are circumscribed, to be considered with the bones and muscles.

The larynx is composed of five cartilages, or gristles, the first of which is called *scutiformis*, because it resembles a shield; the next is called *annularis*, from its likeness to the ring which the Turks wear on their thumb, when they go a shooting. The third and fourth, because they are joined together under one common tegument, and resemble an ewer, are therefore termed *guttales*; these two form the glottis, or little tongue. The fifth is named the *epiglottis*, because it is placed above the glottis. The substance of this is soft, and its shape like an ivy-leaf, and serves as a valve to hinder any thing from falling into the windpipe.

These cartilages are moved by several pair of muscles, and serve principally to frame and modulate the voice in all creatures, and are therefore the instruments of neighing in horses.

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The larynx has two pair of glands, or kernels, belonging to it; one pair is placed on its upper part, and at the sides of the uvula, and are called the *tonsils*; and by some, in human bodies, the *almonds* of the *ears*. These chiefly separate the flaver which comes from a horse's mouth, and serves to moisten not only the larynx, to which they chiefly belong, but also the gullet, by which means every thing passes down it the more readily.

The other pair are placed at the lower end of the larynx, one on each side of the scutiform, or shield-like gristle; these in horses are very large, and are swelled when a horse has got the glanders.

The top of the gullet, or pharynx, which is so called from its office, because it carries and conveys food from the mouth towards the stomach, is somewhat more fleshy than the rest of the gullet, being also seated in the upper part of the throat, behind the larynx. It has several muscles whereby it acts, but these shall be treated of hereafter.

T A B L E V.

Shewing all the Parts of the middle Cavity, or Chest.

Fig. 1. *Represents those Parts in situ.*

- A. The outward teguments laid back.
- B. The breast-bone, and some part of the ribs also laid back to shew the parts contained in the said cavity.
- C. The great kernel, called *thymus*.
- D. The heart.
- E. The right and left lobes of the lungs.
- F. The mediastinum.
- G. Part of the midriff.

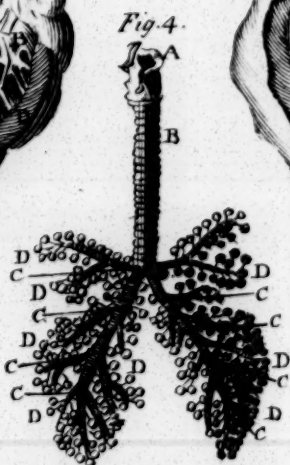
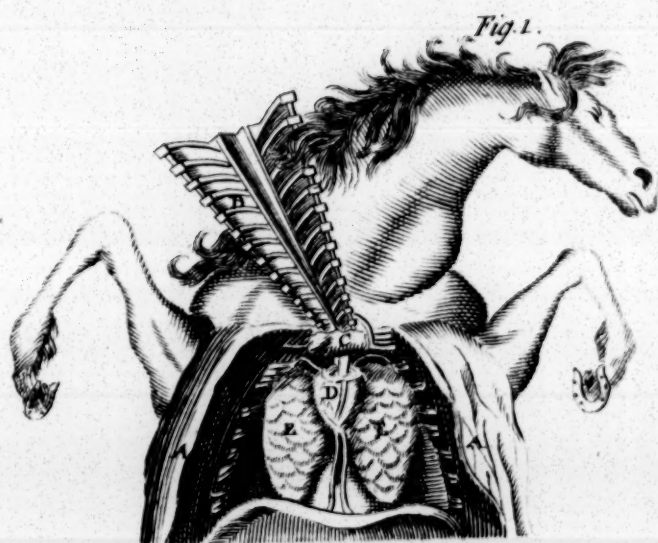
Fig. 2. *Shews the Vena Cava, and right Ventricle of the Heart dissected.*

- A. The orifice of the coronary vein.
- B. The treble pointed valves.
- C. The fibres which fasten the ends of the valves to the substance of the heart.
- D. The sides of the ventricle.

Fig. 3. *Shews the left Ventricle also opened lengthways, to shew its Valves.*

- A. The pulmonary vein coming from the lungs.
- B. The valves called *mitrales*.

Fig.



*This gives you A View of all the parts
of the Cavity of the Chest; in Situ (See table V.)*

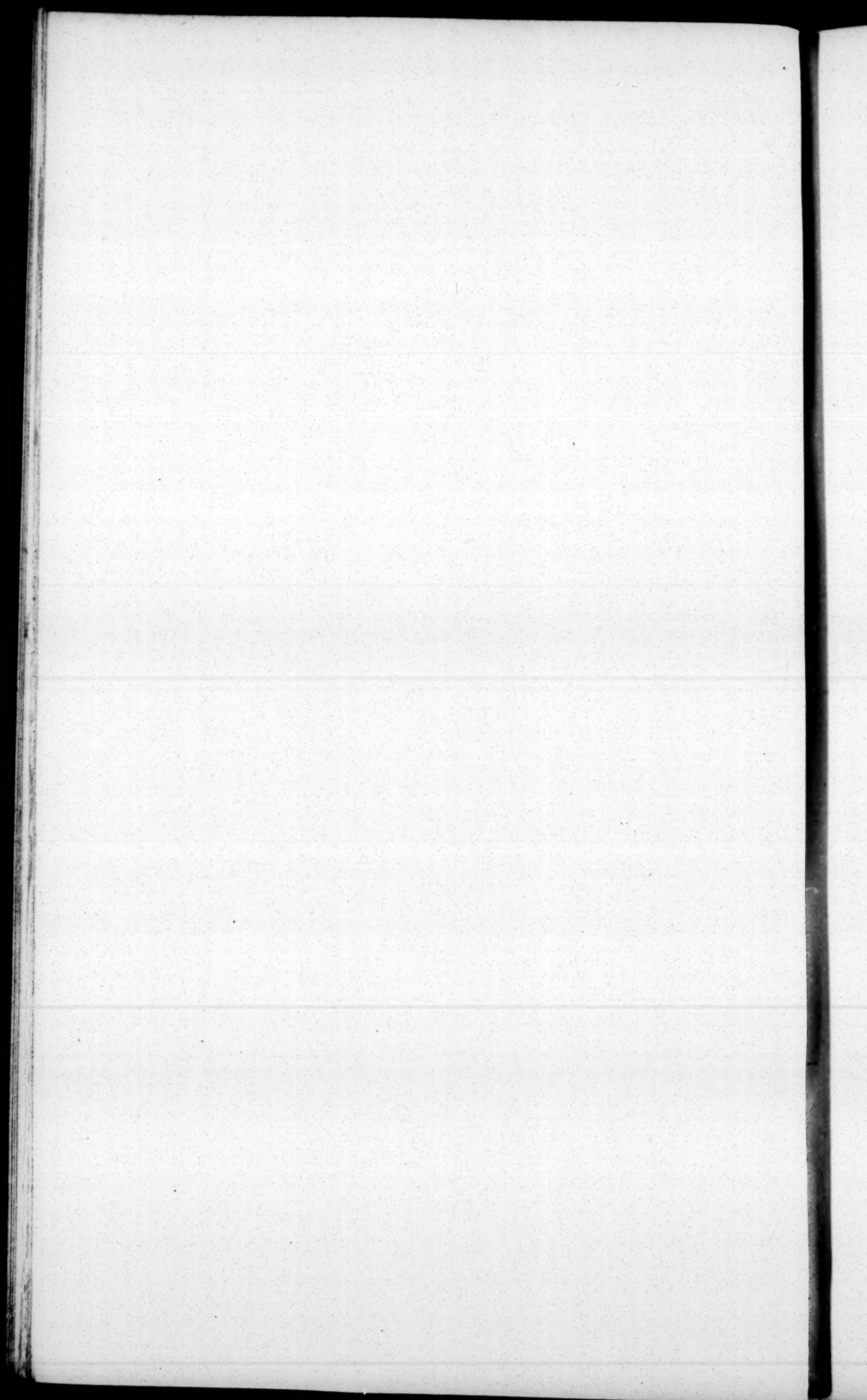


Fig. 4. Represents the Lungs divested of their Parenchyma, or fleshy substance.

- A. The larynx:
- B. The windpipe.
- C. Its various branches.
- D. The innumerable little bladders at the extremities of these branches.

S E C T. XIX.

OF THE UPPER CAVITY, OR HEAD, AND ITS PROPER CONTAINING PARTS.

AS the parts already described have always been esteemed the seat of the vital faculty, so the head is accounted that of the animal, it being the organ from whence all sensations are derived.

The proper containing parts of the head are reckoned to be five, viz. the *muscles*, *pericranium*, *periosleum*, *skull*, and the *meninges*, or membranes contained within it. Leaving the muscles and the skull to be treated of in their proper places, we shall begin with the pericranium,

It is a very thin membrane spread over the whole skull, adhering every where to the periosleum, excepting where the temporal muscles come between them. There are a great number of slender fibres, which pass from it through the

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futurae,

futurae, or seams of the skull, to the *dura mater*, or uppermost membrane of the brain; which fibres serve to stay that membrane in its place, so as to hinder the brain from being hurt by the hardness and unevenness of the skull in violent concussions of muscles of the head.

The periosteum, to which the pericranium adheres, is a substance of the same nature and use, only that it is somewhat thinner. It is endued with an exquisite sense, from whence sometimes arises an excessive pain when the bones are wounded, they being themselves altogether insensible.

These two membranes have arteries from the carotids, and veins from the external jugulars, and are chiefly of use to cover and defend the skull from outward injuries, which otherwise would be exposed and laid bare by every slight accident.

Immediately under the skull, we observe the *dura mater*, so called from its texture, which is very firm; and likewise, as it is generally believed, to give origin to most membranes throughout the body. It is the uppermost membrane peculiar to the brain, which it involves and covers on all parts, and is so well fastened to the internal processes of the skull, that it cannot easily be removed; and besides the communication which has been observed to be between it and the pericranium, it is tied to the membrane underneath it, viz. the *pia mater*, and to the brain itself by the blood-

blood-vessels, which penetrate the skull, and are inserted in it, and pass through it.

This membrane is double, as the peritonæum and pleura, and sends forth a production, which in man resembles a sickle, and is therefore called the *falx*, it being broad toward the hind part of the head, and narrow and sharp toward the nose, and curved at top. This divides the upper part, or cortical substance of the brain, directly in the middle into a right and left side. Within its duplicature are several cavities, called the *sinuses* of the *dura mater*; the longest of which runs length-way from before to the noll, where it is divided into some branches, whereof two descend downward to the bottom of the occiput, and a third to the glandula pinealis. These are supposed to be cisterns that contain the super-abounding blood, which is emptied into them by the arteries, and sucked up again at leisure by the veins.

The pia mater, which immediately involves the brain, and adheres close to it in its convolutions and folds, is a very thin membrane, but of exquisite sense, for which reason several anatomists have been of opinion that all the nerves which arise from the head, derive their coats from it, and not from the medullar part itself. It is furnished with an infinite number of arteries, which spring from the carotids and cervical arteries, and veins from the jugulars, all which are very small, but finely interwoven one with another.

These two membranes are not only of use to cover and involve the brain, in order to preserve it,

it, and to keep its loose substance together, but also to sustain the vessels that enter into it. They are farther useful, as they make up the two innermost coats which sheath the pith of the back.

S E C T. XX.

OF THE BRAIN AND CEREBELLUM, WITH THE MEDULLA OBLONGATA, AND PITH OF THE BACK.

THE brain of a horse is much less in proportion than the brain of a man, but is composed of a medullary substance, and has most or all the same parts which are discoverable in a human head.

It is divided into three parts, viz. the cerebrum, cerebellum, or brainlet, and the medulla oblongata.

The cerebrum contains all that substance which lies uppermost in the head, and which is divided in half by the falx above described. Its outside is of an ashy colour, and formed into several convolutions and windings, but not with any visible regularity, as the cerebellum; its inside is white, and therefore called the *corpus callosum*.

The cerebellum is divided from the cerebrum, by a production of the pia mater, which also affords

folds a particular cover to all its folds, which keep them separate from each other. This is made up of four parts, whereof two are lateral, one on each side; the other two are in the middle, standing before and behind; they are somewhat orbicular, and are called the *processus vermiculares*, from the resemblance they bear to the worms in rotten timber.

The medulla oblongata is the beginning of the spinal marrow; it is of an uniform white and compact substance, harder than the brain or cerebellum. It arises from six roots, two of which spring from that part of the brain which is called the *corpora striata*; the other four arise lower and more backward, from those protuberances which are termed the *nutes* and *testes*. It is round, being in length about two inches within the head, before it passes out at the noll, whence it is continued along the chine downward to the fundament, and through all that passage is termed the *spinal marrow*, or *pith* of the back. This has, besides the pia mater and dura mater, another membrane, which forms its outermost or third coat, and is said to arise from a strong ligament which binds together the fore part of the rack-bones.

But before we proceed to the use of the brain, it will not be amiss to take a view of the parts somewhat more narrowly, that the learner may be the more fully instructed in the knowledge of that which in all animal bodies is so absolutely necessary and essential to life and motion. In order to which, we will follow the usual method
of

of dissection, beginning with its under side, having already taken a general survey of the whole.

The first thing which is the most observable on that side, is the rete mirabile, spread all over the bottom of the brain, and is a curious net-work of blood-vessels, formed out of the small twigs which spring from the largest branches of the carotid and cervical arteries, having passed through the skull by proper holes in the bones of the temples. These vessels are the more adapted and fitted to the nourishment of the brain, as they are thus interwoven one with another, by which means the blood takes a much longer stay than if they observed a more straight and equal direction.

The glandula pituitaria, is the next thing observable; towards the bottom of the brain it is enclosed within the membranes, and seated in a small cavity in the os cuneiforme, or wedge-like bone, appointed by nature for that purpose. It has a conduit called the *infundibulum*, or funnel, which conveys the excrements of the brain into it; and for that reason most anatomists have believed there was a passage from it to the nose; but late enquiries have discovered two small ducts which it sends off to the jugular veins; so that some are of opinion it is again mixed with the blood. This funnel, or *infundibulum*, is said to take its rise from the fore part of the third ventricle, into which this moisture seems to be first separated, and is only conveyed by it to the gland above-mentioned, where it probably undergoes another

another degree of refinement, that it may be the better adapted to the purposes of nature.

Anatomists have, it seems, been very much puzzled to find proper resemblances for several parts of the brain, having distinguished some of them by the names of *nates*, or buttocks, and others by that of *testes*, or stones. These come next under our consideration; they are four orbicular or round eminences, which jut out from the medulla oblongata, or beginning of the spinal marrow; the two first being the largest, and the two others only appendages to them.

The *corpora striata*, so called from their being streaked or chamfered, are only the ends of the two thighs, which proceed from the buttocks; by these the medulla oblongata adheres to the brain, as has been observed; and by the nates and testes above described, it adheres to the cerebellum, or brainlet.

Between the buttocks is placed the gland called the *glandula pinealis*, and has been thought by some philosophers to be the seat of the soul, though modern anatomists have so far degraded it, as to make it only the penis or yard of the brain, both on account of its situation, and probably as it seems to be of no other use than to separate a little clear lymph from the arterial blood.

Between the buttocks, and near this little gland, there is a small chink, to which some have given the name of *anus*; others have called it the *tulva*.

Whether it has obtained this appellation in definition of the other, is not material.

As for the ventricles of the brain, which by some have been reckoned four, by some three, and by others but one, we shall not trouble our reader about the number, but only take notice that they are situated in the middle of the brain, reaching forward towards the nose, and downward towards its bottom, in shape of a half-moon. The use of these ventricles is, according to the latest enquiries in anatomy, to serve as a receptacle for that portion of the serum which is separated from the glandulous skin that invests them, and from the glandula pituitaria, and is thought to be again imbibed by the veins, and by them conducted afresh into the mass of blood. They are likewise thought of use to give a free passage to the blood in those channels called the *plexus choroides*, that run along their sides, which probably might be too much compressed by the great weight of the brain, had not nature found out that free and easy situation for them.

Besides those parts already described, there are to be found in the brain the fornix, septum lucidum, and the corpus callosum.

We have already taken notice of the corpus callosum, as being the inner substance of the brain, which is distinguished from the cortical part that involves it by its whiteness, &c. The septum lucidum is only that partition which divides the ventricles and the fornix, is a kind of vault or arch which rises between the brain and
the

the medulla oblongata, and serves to bear up the upper part of the brain, that it may not press too hard upon the subjacent parts.

Now, as to its action and use, it is very certain, the brain, according to the philosophers' terms, is the chief seat of the animal faculty, as the heart is the fountain of the vital ; the animal spirits being prepared from its parenchyma, or marrowy substance, and from thence conveyed into the nerves, which communicate sense and motion to all parts of the body.

These spirits are first of all formed out of the vital, or, in other words, out of the arterial blood, which is constantly sent by the heart to the brain, where there are innumerable twigs dispersed, not only through its cortical or greyish substance, but also through its white and medullary substance ; some of which twigs spring from the plexus choroïdes and rete mirabile above described, and others immediately from the carotids themselves. The superfluous serum is separated by the glands, and that portion of the blood which is not changed to animal spirits, is taken up by the veins and returned from whence it came. As soon as those spirits are elaborated, or, rather, as soon as the blood has undergone so many different modifications and changes in the capillary or hair-like vessels of the brain, as to render its particles fine enough to pass through the inner medullar substance, they then enter those fibres which compose it, and seem to be no other than a large bun-

dle of tubuli, or little pipes, which (if the comparison may be used) somewhat observe the same œconomy with those of the kidneys, which pass from the external glandular part to the carunculæ papillares. These little particles, or rather spirits, are conveyed by the tubuli to the upper processes of the medulla oblongata, viz. the corpora striata, nates, testes, &c. and are there emptied into the nerves, whose inner substance is white and fibrous, like the medulla from whence they spring.

After this short account of the formation of the animal spirits, the next thing that occurs is, in what manner they become the instruments of sense and motion. In order to give the reader a general idea of this, it will be necessary, in the first place, to consider the substance of a nerve, which is very solid and compact, proceeding, by a kind of gradation, from that of the brain; for, as the corpus callosum, or inner substance of the brain, is more firm than the cortical part, so a nerve is, even at its origin, some degrees beyond that in solidity; by which means it is the more adapted to its peculiar functions.

Besides the solidity and compactness of the nerves, their tenseness is also a great means of their action; for as the blood-vessels, which have no other sense but what is borrowed from them, and as their office is only to carry vital spirits for the common nourishment of the body, as these are therefore branched off in many circumvolutions and turnings, and are formed irregularly into such
meanders

meanders as we observe in brooks and rivulets, and as some branches are sent upward and others downward, as is necessary in order to their several functions, so the nerves, on the other hand, as they take their origin from the head and spine, are detached from thence into all parts of the body, in such manner as they may be everywhere braced as strait as the strings or cords of an instrument; by which means they have a free and uninterrupted undulation, and, as in all their branchings, they are scarcely at all contorted, but for the most part, form complete and perfect angles, the said undulation being communicated as entirely to their origin, as if their course was directly straight from it.

Therefore as the nerves are of a very compact and solid form, and can be braced and extended in such manner as has been observed, and consequently endued with elasticity, they must easily and suddenly communicate all sensations to the imagination, there being no part of the body which does not participate of some little fibrillæ, or threads detached from them; or, according to some, there being no part of the body which is not more or less adapted to receive the nervous juice; by which means a close and intimate correspondence is kept up with the nerves. So that when an animal body is touched on any part, it is presently sensible of that touch, by virtue of a communication which they keep between the head and all parts of the body.

As to motion, to which the nerves are equally subservient, it is termed *voluntary* in a man, and
Spon-

Spontaneous in a brute creature, as the one is said to act by the determination of the will, and the other by instinct; but this is not material, since both are said to be produced by the determination of the animal spirits; for when any creature goes to move, the spirits are thought to be detached in a more than ordinary quantity into those parts which are to be put in motion. And as the arterial blood always accompanies the spirits, and is equally determined with them, the muscles are thereby filled or emptied, according as the will or instinct directs, as we shall see more fully hereafter.

But before we leave this subject, it may perhaps be expected we should give some account of the nature of those spirits which are said to flow in the nerves, and are reckoned the principal cause of action in them. To satisfy those who have a curiosity that way, we shall in brief take notice, that these are thought by some to be of a viscous and clammy nature, though composed of very fine particles; and this sort of composition is supposed to be agreeable to that elasticity and springiness which is observable in the nerves. Others have denied any such thing as a juice to be in the nerves; because, when a nerve is cut asunder, there is no visible bore or cavity in it, neither are there any poruli, or little interstices, perceivable in it. But it is very certain, according to the common and unalterable laws of nature, whereby all bodies are made up of parts, and these also made up of other parts, they must therefore have interstices, though imperceptible; and

and that juice which flows in them, whether between those interstices only, or any other way, though it be also imperceptible, yet it is that which we not improperly denominate the *animal spirits*. Though we can say but very little more than this, that it is the most subtile of all the juices which are to be met with in an animal body, and therefore the best suited to the services for which it is appointed.

S E C T. XXI.

OF THE RISE AND PROGRESS OF THE NERVES.

BESIDES the nerves, which arise from the vertebræ of the neck, back, and loins, there are nine pair which take their origin immediately within the skull.

The first are those which go to the nose, and are therefore called the *olfactory nerves*, and by some the *mamillary processes*, because they are round at the end, like a pap. They rise from the flanks of the medulla oblongata, between the corpora striata and the chambers of the optic nerves, from thence running along the bottom of the brain; after increasing and growing broader, they are divided into a great many twigs, which receive outer coats from the dura mater, having only before a single integument from the pia mater. Many of these twigs pass through the holes of the sieve-

ieve-like bone to the nose, where they help to compose the organs of smelling.

The second pair are the optic or eye nerves; these rise a little behind the former, out of the medulla oblongata; at their rise they are somewhat soft, being only covered with the pia mater; but as soon as they reach the dura mater, they become clothed by it, as the olfactory nerves before described. This outermost coat constitutes the sclerotica or horny tegument of the eye; and from the pia mater proceeds the next coat of the eye, called the *uvea*, from its resemblance to a grape in colour; and lastly, the marrowy substance forms the retina, or net-like, which by some is called its third coat.

The third pair are called the *eye-movers*; these arise from the bottom of the medulla oblongata; at the rise they are united, which is the reason why some believe, when one eye is carried towards any object, the other is also directed towards the same; as the optic nerves pass through the first hole of the wedge-like bone, these pass through the second, until they come to the muscles of the eye where they are dispersed; by their actuating the muscles, the several motions of the eye are performed.

The fourth, or pathetic pair; these take their rise different from all the rest, viz. from the top of the medulla oblongata, behind the nates and testicles, and passing along the side of the medulla, are afterwards hid in the dura mater, until they reach

reach the hole through which the last pair pass, which they accompany, until they are inserted in the trochlear muscles of the eyes; these are called by Dr. Willis the pathetic nerves, which move the eyes in all passions and affections.

The fifth pair take their beginning in a horse a little below the former, though in a human subject they seem to arise from the cerebellum. These are made up of a bundle of fibres gathered together, so that they appear to be a number of nerves springing from one common origin, which send out branches into all parts of the head, viz. to the eyes, the palate of the mouth, the nose, but chiefly to the lower jaw. The temporal muscles, and muscles of the face, and some branches which go downwards, inoculating with the sixth pair, constitute the root or first trunk of the intercostal pair. It is owing to the several branchings and inoculations of these nerves following, that there is so great a sympathy and consent among all those parts where they take their progress.

The sixth pair inoculate with the fifth, after they have passed singly through the same hole of the skull, and been hid some time under the dura mater; after which they send back some branches, which constitute the beginning of the intercostal nerves. Each of these are divided near the orbit of the eye into two, one being spent on that muscle of the eye, which draws it outwards; the other, on that which is only proper to brutes, called the *seventh muscle*.

The seventh pair are the auditory nerves; these in a human head take their rise from under the annular processes of the cerebellum, but in a horse, from the sides of the oblong marrow. They have two processes, one of which is somewhat soft, and is carried through the hole of the os petrosum, into the cells of the ears, which it clothes with a very fine membrane, and by which the sounds are conveyed into the common sensory; the other is said to conduce chiefly to motion, sending forth several slips to the tongue, lips, mouth, and nose, actuating the outward organs of the voice; others take their course to the muscles of the forehead and eye-lids; and some to the muscles of the ears, assisting a horse in moving his eyes and ears upon hearing or seeing any thing that is astonishing to him.

The eighth pair is generally termed the *par vagum*, or wandering pair, because they inoculate and keep up a communication with the branches of many other nerves, and are distributed, not only to the head, but also into many other parts of the body, particularly to the heart, the lungs, and stomach, as also to all the other viscera in the lower belly.

The last pair are reckoned only branches of the fifth and sixth, because they take their origin from some of their recurring branches. This pair has also several inoculations, and are formed with other branches into several plexuses, as those last described, but not so numerous. They take their course chiefly to the mesentery
and

and loins, ending towards the fundament, in several small twigs.

Having described the nerves, which take their origin within the skull, we proceed in the next place to those which derive their beginning from between the joinings of the neck, back, and loins, which shall, in a manner, be but just named, they being in number thirty-seven, whereof seven arise from the neck, seventeen from the back, and thirteen from the loins and os sacrum.

Those of the neck are all of them dispersed, partly on the muscles of the face, partly on the muscles of the neck itself, and partly on those of the shoulders and fore-legs; only it is to be remarked, that a twig from each nerve of the fifth pair, being joined with the like twigs of the fourth and sixth, compose that remarkable nerve which goes to the midriff, called the *nervus phrenicus*.

The first two pair, which arise from between the vertebræ of the back, communicate with the lowermost of the neck, sending forth some twigs to the neck and shoulders. The second, as also all that follow, send each of them a twig to the intercostal nerve, or nerve of the ninth pair, their other branches being chiefly spent on the intercostal muscles, and muscles of the back, with some small slips towards those of the lower belly.

As these are chiefly dispersed among the muscles of the back, the intercostals, and the muscles of the lower belly, so those of the loins, and those

also which spring from the os sacrum, are dispersed into the muscles of the loins, hips, and hin-legs, only that the anterior, or fore-branches of the first pair of the loins, are spent on the fleshy part of the midriff and muscle psoas, and the posterior branches on the muscle, called the *longissimus dorsi*.

The yard of a horse, and the womb of a mare, are also furnished from the anterior branches of the loins, and testicles from the anterior branches of the os sacrum, sent off to them from the fore-part of the thigh.

S E C T. XXII.

OF THE EYES, AND THEIR SEVERAL PARTS.

EVERY one knows that the eyes are the organs or instruments of seeing, the ideas of all outward objects being conveyed by them to the common sensory.

They are of a convex globular figure, inclosed within their proper lids, which is an orbit, or socket, made for that purpose out of the bone.

The eye-lids, of which we shall first take notice, serve as a safeguard to preserve them from dust, and other external injuries. They are composed of the skin, fleshy pannicle, and muscles, which are all wrought into an exquisite fineness; the inner membrane, which is very smooth, that the eye
may

may move the more easily under it, is a production of the pericranium; the extremities, or edges, are hard and gristly, partly to help their action, and partly that they may meet close together. As to the fat which lies among the muscles, it is of the same use as in most other parts, viz. to keep the eye moist, and easy in its motion.

The eye itself is composed of three humours, and four tunics.

The first of its tunics is called *adnata*; it arises from the pericranium, and is spread all over the white of the eye, by which means it keeps it firm in its orbit or socket. It is of exquisite sense, and very full of blood-vessels, which are perceivable at all times, but especially when the eye has received any hurt.

The next, which is the first of its proper coats, is called the *sclerotica*, from its hardness. It arises from the dura mater, being opaque on its hind-part, but clear and transparent, like horn, on its fore part, from whence it obtains another name, and is called the *cornea*.

The third, called *choroides*, from its resemblance to the chorion, which incloses the fœtus in the womb. This arises from the pia mater, as it also forms the innermost coat of the optic nerve. It is black on its inside, and open on its fore-part the whole breadth of the pupilla. The fore-part of this coat is also distinguished from its back-part, by the name of *uvea*, from its resembling the colour of a grape. To this belongs the ligamentum

tum ciliare, because it consists of slender filaments, like the hairs of the eye-lids. The use of these filaments is to widen and constrict the crystalline humour, by contracting or opening the perforation of the uvea.

The innermost, or fourth tunicle, is an expansion of the substance of the optic nerve, and is called the *retina*, because it encompasseth the glassy humour, like a net; by a combination of the rays of light on the fine filaments of this coat, and the reflection which is caused by the opaqueness of the sclerotica, and the blackness of the inside of the uvea, all external images are conveyed distinct to the imagination; whereas, if the rays were not thus collected on the retina, there would be no such thing as distinct vision.

The humours of the eye, which come next to be considered, are in number three.

The outermost is called the *aqueous*, or watery humour, being thin and fluid, like water; it fills up the space between the cornea and crystalline humour in the fore-part of the eye.

The *crystalline* is the next, so called from its brightness, being clear and transparent, like crystal; it is inclosed in the vitreous, or glassy humour, and is looked upon to be the chief instrument whereby the rays of light are collected upon the filamentous expansion of the retina.

The last is called the *glassy humour*. It is not so solid as the crystalline, but exceeds both it and the watery humour in quantity; it is partly convex, excepting that cavity where it receives and surrounds the crystalline. It is not so bright

as

as the crystalline, but yet transparent, that the visible species received into the crystalline humour, might not be reflected before they reach the retina, but should be transmitted to it pure and unmixed.

S E C T. XXIII.

O F T H E E A R S.

THE ear is divided into the external and internal; the external is that part which a horse moves backward and forward at pleasure, and is so well known, that there needs but little to be said about it. Its use is partly for ornament, and partly to gather all sounds, and transmit them to the internal.

The internal ear consists of several parts, which are very curious, and are seated in the cavity of the os petrosum.

The first of these is the drum, with its cord and muscles. The drum is a very thin and transparent membrane, being an expansion of the softer process of the auditory nerve; it is very dry, that it may the better contribute to hearing; and strong, that it may the better endure loud sounds, or any other external injuries; for if once this be broken, or any way relaxed, a deafness must unavoidably ensue.

Within

Within this membrane there is a cavity, called the *concha*, wherein are four little bones, which are bound together by a small ligament proceeding from the cord of the drum. The first is called the *hammer*, which lies upon the second, called the *anvil*. The third is named the *stapes*, or stirrup; but in a horse it is triangular, like the Greek letter Δ . Upon the upper part of the stirrup the longest foot of the anvil stands. The fourth is called *orbicular*; it is of a round shape, and tied with a slender ligament to the side of the stirrup, where it is fastened to the anvil.

These bones are a defence to the drum, and preserve it from being toren, or beat inward by the violent vibrations of the outward air in loud sounds, and are thus assisting to the sense of hearing. When the external air beats upon the drum, it is driven against the hammer, which strikes upon the anvil, as the anvil beats against the stirrup; and as this force is more or less exerted, so the stirrup opens the oval window more or less, and proportionally the sound appears louder or lower.

The cavities within the *os petrosum*, are in number three; the first, wherein these four little bones are situated, is called the *concha*, from its resembling the shell of a snail. When the membrane is struck upon by any outward sound, the echo is made in this cavity, as in a common drum.

There are in this cavity, divers instruments, whereof some are for pulsation, as the four little bones

bones above-mentioned; some are for conducting the air into the other cavities, such are the two small perforations, called the *windows*; and a third sort are those by which the pituitous matter, collected within its cavity, is discharged toward the palate and nose.

The first of these two perforations being the uppermost and largest, is from its figure named the *oval window*, which is kept shut next the concha, by the basis of the stirrup, as often as the sound ceases. The other, which is round, is always open; having no covering, and is divided by the os squamosum into two pipes, one of which tends to the cochlea, the other into the labyrinth.

The labyrinth, which is the second cavity, by its several turnings and windings, which are somewhat circular, modulates the sounds in such manner as they may be leisurely communicated to the auditory nerve, which is dispersed through the membrane that invests this cavity. There are, besides the two windows which open into this cavity, one perforation which opens out of it into the inner cavity, called the *cochlea*, into which the air passes, after it has been agitated in this cavity and the concha. Besides these, there are four other small holes for the ingress of the nervous fibres, that are inserted on the membrane, which clothes it.

The *cochlea*, which is the third and innermost cavity, is so called from the resemblance it has

to a snail's shell, especially in its spiral windings; it is far less than either of the former, but invested, as the others are, with a thin membrane, into which also the slender fibres of the auditory nerve do enter. This cavity is filled with the internal inbred air, as well as the former, by which the echo is made to the impulse of the external air upon the tympanum. And the auditory nerve being extended upon the membrane, which lines all those cavities, it is suddenly affected therewith, whereby it comes to be communicated to the original of the nerves, where all sounds are distinguished.

S E C T. XXIV.

OF THE NOSE AND MOUTH.

AS the ear is made up of parts, whereof some are external, and some internal, so the nose is also composed of the like parts.

The external parts of the nose are made up of skin, muscles, bones, cartilages, and vessels of all sorts.

The skin is extremely thin, and without fat, and adheres so fast to the muscles and gristly part, that it can hardly be separated from them.

The bones, which make up its cavities, are some of them common to it and the forehead, and some proper to the nose only. The gristles are in number

ber five, which will be treated of hereafter with the bones.

The vessels of the nose are, veins from the jugulars, arteries from the carotids, and nerves from the third pair, besides the olfactory nerves, which are proper to it.

It is lined on its inside with a fine membrane, which takes its rise from the dura mater. There are on the back part of this membrane, abundance of little kernels, which separate a great part of the moisture which comes from the nose. It has also another membrane, called its *muscular membrane*, which is said to contract and draw together the nostrils.

On the upper part of the nose is seated the os cribriforme, or sieve-like bone, which is perforated in many places, that the small twigs which spring from the mamillary processes, may have a free passage through it into the inside of the nose, serving there to be the immediate organs of smelling.

As the ear is formed in such manner as to collect and gather together all sounds into its cavity, so the nose is likewise adapted to gather into it all smells; which sensation is performed in this manner. The effluvia, which fly off from all odoriferous bodies, being carried in the circumambient air, are communicated to all creatures as often as they draw in their breath at the nostrils, but more to a horse than to many others, by reason he sucks in most of his breath that way. As soon as these effluvia, or odoriferous particles, are got

within the nose, those little branches of the olfactory nerves, which are spread all over its inside, are immediately affected therewith, and immediately communicate that sensation, whether it be grateful or unpleasant, to the common sensory, where it is distinguished.

Thus the nose is not only useful, as it helps all creatures to distinguish that which is proper for their food, from that which may be hurtful to them, as it is the chief instrument of that instinct, but it is also useful to discharge a quantity of excrements from the blood.

We come now to the mouth, which is the last thing to be considered under this division, and is generally divided into that which is called external, and that which is termed internal.

The lips are its external, or outward parts, which are also divided into the upper and under. These are composed of a soft fungous substance, as also of some proper muscles covered on their outside with skin and hair, but on the inside with a membrane common to the mouth and stomach.

The use of the lips are to gather in hay or oats, or other food, and to retain it while it is chewing; they likewise serve to keep the gums and teeth from external injuries.

The parts of the mouth are some of them fleshy, and others bony. The fleshy parts are the lips last described, as also the muscles of the cheeks and lower jaw. The bony are the upper and lower jaw, together with the teeth.

All

All these parts, excepting the teeth, are covered or lined with a pretty thick membrane, which, in the palate, is rugged and knotty, by reason there are a great number of small glands lie under it, out of which part of the flaver is separated into the mouth.

The parts contained within the mouth, are the teeth, the os hyoides, or bone of the tongue; besides which, there are the gums, palate, uvula, and kernels (called the *almonds* of the *ears*) the tongue, and its muscles.

The gums are composed of a fleshy substance, destitute of motion, that so the teeth might the better be fastened in their sockets.

The palate, so called from its being fenced, or paled in with teeth, forms the upper part of the mouth. It extends from the back part of the mouth to the fore-teeth, but is not so hollow in a horse as in human subjects; it is composed of eighteen bars, and consists of bones and peculiar glandulous flesh, which are covered with a thick coat, full of perforations, or little holes, that afford a passage to the flaver, which is separated from the glands above-mentioned.

The uvula is a red fungous kernel, somewhat long, seated at the back part of the palate, where the internal passage of the nose opens into the mouth, hanging downward, with a small but blunt end over the chink of the larynx.

The use of the uvula is to moderate the coldness of the air before it passes into the lungs, and to hinder any thing from falling into the wind-pipe.

pipe. In a horse it is of other uses, as it hinders the water from going into the nose when he drinks. When this is much relaxed, it prevents the food from passing into the gullet, and makes it apt to return into the nose.

In describing the tongue, we need say nothing as to its figure, it being sufficiently known to every one. It is covered with two membranes, the outward clothing only its upper part, being also very porous. The inward membrane covers the whole tongue, and is thin and soft, having many protuberances bunching out of it, which are inserted into the pores and holes of the outward coat.

It is of a fleshy substance, having vessels of all sorts, viz. veins from an inward branch of the external jugulars, arteries from the carotids, and nerves from the fifth and eighth pair.

There are also belonging to the tongue several muscles, by which all its motions are performed, but of them hereafter. These muscles are interlarded with a considerable quantity of fat, which, no doubt, serve somewhat to facilitate their action.

The use of the tongue is not only for taste, but also to serve as an instrument to turn every thing taken in at the mouth, that it may be the more expeditiously chewed, and afterwards to thrust it backward toward the stomach.

Underneath the root of the tongue there is a large kernel, from whence two pipes, called the *salival*

salival ducts, spring, one from the fore, and the other from the hind part; these two are soon united into one, which runs toward the chin. In a horse there are other remarkable glands that stand on each side this duct, and discharge themselves into it. This pipe ends in other small glands towards the frænum, or bridle of the tongue, which discharge part of the flaver that keeps the mouth continually moist. Besides this duct, there are two others of the same use, which arise out of the kernels under the ear, called the *parotides*, and run on the outside of the jaw-bone to the middle of the check, where they open into the mouth.

The use of the flaver is the same with the *saliva* or spittle in men, and serves continually to moisten the mouth; and all the solid part of food, whilst it is chewing, and being swallowed down with the aliment, it is believed, by some anatomists, to contribute to digestion.

T A B L E VI.

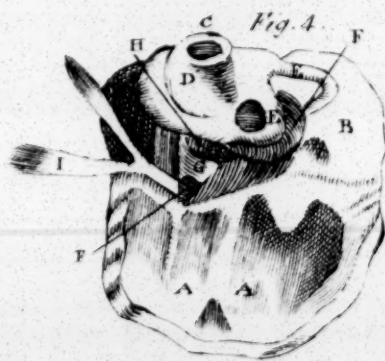
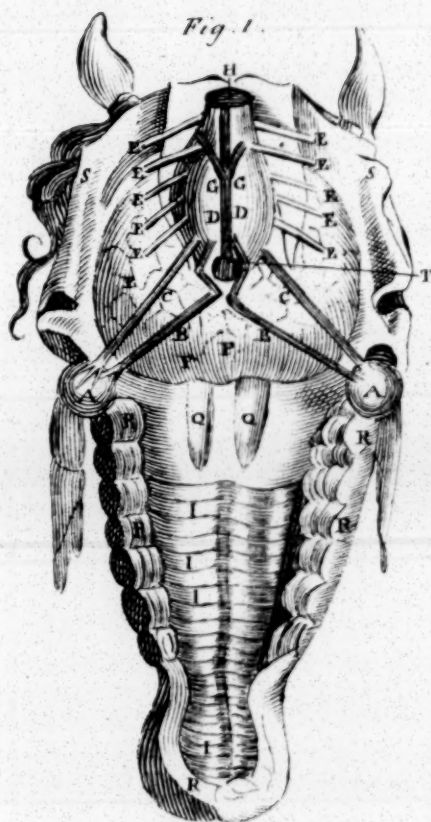
Fig. 1. *The Brain, when the upper Part of the Skull is taken off.*

- A. The substance of the brain, covered with the pia mater, only the dura mater being removed.
- B. The cerebellum, or after-brain.
- C. The processus vermiformes, or worm-like processes.
- D. A portion of the medulla oblongata.
- E. The dura mater, so far as it contains the medulla oblongata, cut asunder and turned back.

Fig. 2. *Represents the under Side of the Brain and Spinal Marrow, with the Origin of the Nerves.*

- A. The eyes.
- B. The optic nerves.
- C. The moving nerves of the eyes.
- D. The pathetic nerves.
- E. The other nerves arising within the skull from the spinal marrow.
- F. The bottom of the brain.
- G. The medulla oblongata, or beginning of the spinal marrow.
- H. The spinal marrow cut off.
- I. The bars of the palate of the mouth.

Q. The



*These Figures shew the Brain when part of
the Skull is taken off. (See table VI.)*



Q. The cavity that goes from the palate to the nose.

R. The teeth.

S. The dura mater turned back.

T. The glandula pituitaria.

Fig. 3. *Shews the Bones of the Ear, &c.*

A. The infide of the os temporis, or temple bone.

B. The os spongiosum, or spongy bone.

C. The hole through which the auditory nerve passes.

D. The greater winding of the cochlea.

E. The three bony half-circles that form the labyrinth.

F. The malleus, or hammer.

G. The incus, or anvil.

H. The stapes, or stirrup.

I. The external muscle of the ear.

K. The internal muscle.

Fig. 4. *Represents the Eye taken out of the Head.*

A. The optic nerve cut off.

B. The origin of the muscles.

C. Their several terminations into the coats of the eye.

D. The common coat of the eye, called the *adnata*, or *conjunctiva*.

E. The cornea, or horny coat.

F. The pupilla, or apple of the eye.

S E C T. XXV.

OF THE BONES WHICH FRAME AND COMPOSE
THE SKULL, WITH ITS SUTURE.

THE uppermost part of the head is the skull, called by anatomists the *cranium*, from its office of covering the brain like a helmet. It is composed of nine bones, three of which are common to it and the upper jaw, which are the wedge-like bone, the os jugale, or the yoke-like bone, and the os cribriforme, or sieve-like bone. The other six are proper bones, and make up the skull itself; and these are the frontal, or forehead-bone, the occipital, or noll-bone, and two bones of the finciput, or parietal-bones, and the temple-bones, within which are contained the small bones of the ear, which, with the two orbicular-bones, make up the number of seventeen bones peculiar to the skull.

The large bones are distinguished by several seams, called *futures*, both which, and the bones, are of the same number in a horse as in men, differing only in shape and figure.

Some of these futures are proper to the skull alone, and some are common to it and the upper jaw. They are also distinguished into those that are true and those that are false; such as are indented one into another, being of the first kind, and such as are plain and linear, like two boards
glewed

glewed together, being accounted of the second kind, or only false futures.

The true futures are three in number, and proper to the skull only, viz. the coronal, lambdoidal, and sagittal.

The coronal, so called because the ancients used to wear their crowns, or garlands, on that part. This future, as in men, so likewise in a horse, runs athwart the skull above the forehead, reaching on each side to the temple-bone, and joining the forehead-bone to the sinciput.

The second lamdoides, because of its resemblance to the Greek letter Λ . This is seated on the hind part of the head, being opposite to the other, beginning at the bottom of the occiput, and ascending above the ear something higher than in men. It joins the bone of the occiput, or hind and under part of the skull, to the bones of the sinciput and temples.

The third begins at the middle of the lambdoidal future, dividing the two bones of the sinciput, and is therefore called the *sagittal future*; but in a horse, and many other quadrupeds, it crosses the coronal future, as in children, quite down to the nose. This future in a horse is not so much indented as the other two, but is in a great measure streight and linear.

The false futures are two in number; the first passes from the root of the processus mammillaris with a circular duct, returning down again towards the ear, encompassing the temple-bone.

The second runs obliquely downwards, arising from the top of the former, and passes to the socket of the eye, and the beginning of the first common future.

The futures which are common to the skull, the wedge-like bone and upper jaw, are chiefly the three following, viz. the frontal, wedge-like future, and the cribrosa. The first being that by which the process of the forehead-bone is joined with the first bone of the upper jaw; the second that by which the wedge-like bone is joined with the first bone of the same jaw; and the third that future which is common to the wedge-like bone and the septum, or partition of the nose.

These futures are of use, not only as they divide the bones which compose the skull, but also as they afford a free ingress and egress for the vessels which supply life and nourishment to the parts contained within the skull, and likewise as they give a passage to those little fibrils, by which the dura mater is kept suspended. And farther, they are of use in case the skull should at any time be broke, that any such fracture or fissure might not run through the whole skull, but be stopped at the end of the fractured bone; whereas if it was not for these seams, it might at one blow be broke in pieces, like an earthen pot. But we will return to the bones.

The frontal, or forehead-bone, which we have already taken notice of as the first proper bone of the skull, is seated before, and makes the fore part
of

of the skull. It is bounded on its fore part by the coronal, and first common future, on the sides by the temporal bones, and on its inside by the ossa spongiosa, or spongy bones. Between its lamina, or plates, there is a double cavity, from whence there is also a double passage into the nostrils, distinguished by many bony fibres and small scales, which are encompassed with a green membrane, and contain a soft medullar or oily substance. These are proportionably larger in a horse than a man, and have various uses ascribed to them, being thought by some to assist in the office of smelling, by entangling the odoriferous air; by some to promote the shrillness of the voice; and by others, a receptacle for some portion of the excrementitious matter which is separated from those parts.

Besides these cavities, there is a sinus or den on each side, called the *frontal sinuses*, composed of a double scale, one making the upper part of the orbit of the eye, and the other forming the cavity above the eyes on either side, which is not very plain, having only inscriptions answerable to the winding convolutions of the brain. This bone has two holes, which go to the orbit of the eye, whereby the first branch of the nerve of the fifth conjugation, goes to the muscles of the forehead. It has likewise four processes, two of which are seated at the greater corner of the eye, and the other two at its lesser corner, helping to form the upper part of the orbit.

The

The bones of the sinciput are the next to the frontal, being joined to it by the coronal future, and behind to the occipital-bone by the lambdoidal future, on each side to the temple-bones, by the *futura squamosa*, or scaly futures, and by one of the common futures to the wedge-like bone. They are also joined one to the other, by the sagittal, or arrow-like future.

Their figure is somewhat square, and though their substance is thinner than that of the other bones of the skull, yet they are also made up of two lamina, excepting where they are joined to the temple-bones. They are smooth on their outside, but inwardly uneven, having several cavities to which the dura mater adheres by the sides of the sagittal future; as also several long and winding inscriptions, or furrows, formed by the branches of the internal jugulars, in their passage to the brain. These bones have also several perforations, some of which go quite through, others piercing only the upper table for the entrance of those vessels which run between its plates.

The occipital, or noll-bone, which makes the hinder and lower part of the head, and middle of the basis of the skull, is the hardest of all the bones of the skull, excepting the *os petrosum* of the temple-bones, being very thick at bottom, where the two sinuses of the dura mater are joined. At the sides of the great perforation through which the spinal marrow descends, it is somewhat thin; but that its thinness may be no prejudice to it, it is strengthened by a large prominence, which
ascends

ascends from the said perforation quite to its upper part. By this prominence, the two protuberances of the cerebellum are distinguished.

This bone is in a horse five-cornered, and has several channels, or sinuses, two of which being large, receive the protuberances of the cerebellum, or after-brain; others receive some of the convolutions of the brain itself, and some the two sinuses of the dura mater, that they might not be compressed or hurt for want of a proper cavity to lie in.

It has also divers processes, four of which being covered with a smooth gristle, are received into the sinuses of the first vertebra of the neck; but that which goes between the protuberances of the cerebellum, is the most considerable. It is perforated in five places for the passage of several vessels, besides the large hole through which the medulla goes into the spine of the neck.

The last of the proper bones of the skull are the temple-bones, which are seated on each side of the head, reaching to the bottom of the ears. Their figure is on their upper sides semicircular, but below they are rugged and unequal, like a rock; from whence, and from their hardness, the temple-bone has also obtained the name of *os petrosum*. These bones are very thick at their bottom, but grow extremely thin upwards, lying like two scales on the lower edge of the bones of the *inciput*.

They have each of them two sinuses; the outermost, being the largest, is lined with a gristle, and receives

receives the longest process of the lower jaw. The other, or inward cavity, is common to the temple and noll-bones. There are four processes belonging to each temple-bone, viz. that which in man is called the *processus styloides*, or pen-like process, though improperly in a horse, it being but short. The next is called the *processus mammillaris*, being somewhat shaped like a nipple. The third passing forward from the hole of the ear, to the protuberance of the first bone of the upper jaw, and being joined to the last, forms the os jugale, or yoke-bone. The fourth is the *processus petrosus*, or hard and uneven part of the temple-bone; this being internal, juts out a great way into the inside of the bottom of the skull, within which there are two perforations; one to give a passage for an artery, and another for the auditory nerve into the inner cavities of the ear, viz. the tympanum, labyrinth, and cochlea.

This process has on its outside three perforations, or holes; the first is called the *meatus auditorius*, or auditory passage. The second is that from which the jugular vein enters into the inner cavities. The third is seated between the mammillary and styloid processes, ending in that passage which goes from the ear to the mouth. As to the little bones that are contained in the cavities of this process, viz. the incus, malleus, stapes, and os orbiculare, which, with those already described, make up the whole number of bones proper to the skull, having taken notice of them already in another place, we shall pass on to those which
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are common to the skull and upper jaw, which are three in number, viz. the *os sphenoides*, or wedge-like bone, the sieve-like bone, and yoke-like bone.

The *wedge-like bone* is so called from its being placed like a wedge between the bones of the skull and upper jaw; it is joined before to the frontal-bone, and behind to the occipital, its sides to part of the petrosum, above and below to some of the bones of the upper jaw and palate.

It has several processes, both external and internal; as also divers cavities, two of which are common to it, and the temple-bones, and the bones of the sinciput. Its holes are about seven on each side; one of which gives a passage to the optic nerve, the rest are penetrated, some by one, and some by several pair of nerves; others by the carotid arteries and jugular veins; and again, others both by nerves and blood-vessels.

The *os cribriforme* is the next bone common to the head and upper jaw, and is so called from its innumerable little holes, which make it like a sieve. It is situated in the fore and under side of the skull, between and a little below the sockets of the eyes, and at the upper part of the nostrils, and is joined by an even line to the forehead-bone, the second of the upper jaw, and the wedge-like bone.

It is made up of four parts, viz. the *crista galli*, or cock's comb, to whose sharp appendix the *falx* adheres. The second part is that which is perfo-

rated, and makes up the greatest portion of it. The third is only a process on its under side, by which the nostrils are divided. And the fourth is called the *os spongiosum*, its cavities being filled with a spongy sort of flesh. This bone helps to make up the inner corner of the orbit of the eye, and through its holes gives a passage to the innumerable fibrillæ of the auditory nerves.

The last is the jugale, or yoke-like bone, and is composed of two bones; one of which is a process of the temple-bone, and the other a process of the first bone of the upper jaw, forming the lower side of the less or outer corner of the orbit of the eye.

S E C T. XXIV.

OF THE JAW-BONES AND TEETH, TOGETHER
WITH THE OS HYOIDES, OR BONE OF
THE TONGUE.

BESIDES the bones which are common to the skull and upper jaw, there are twelve, viz. six on each side, which are proper to the upper jaw alone, and are those which frame the lower side of the orbit of the eye, nose, cheeks, and roof of the mouth.

The first is called *zygomaticum*, because its process makes up part of the *os jugale*; it composes the lower part of the outer corner of the eye.

The

The next is seated in the inner corner of the orbit of the eye, and is called *lachrymale*, because it has in it a cavity which contains the lachrymal gland. This bone has also a perforation into the nostril, through which a nerve of the fifth pair passes to the inner membrane of the nose.

The third is seated in the inner side of the orbit of the eye, and is continued with the fungous bones of the nostrils. This bone is joined to four others, viz. the forehead-bone, wedge-like bone, to the last described, and the next following, and are not distinguished by any particular name.

The fourth is called the *os malæ*, or cheek-bone. This bone composes the greatest part of the cheek, as also of the palate, and contains all the upper teeth in its lesser caverns. It is much the largest of all the bones of the upper jaw, and is circumscribed with divers sutures, being joined above to the frontal-bone on the side next the nose, below to the wedge-like bone, and the bone of the palate of the mouth, before to the lachrymal bone, and one of those bones that make the upper part of the nose, as also to the cheek-bone on the other side. It has three perforations, two of which are under the orbit of the eye, for the passage of two branches of nerves that are bestowed on the face; and the third for the passage of a vein and artery, which go to the nostrils. This bone has likewise a great den or cavern on each side, in that prominent part which stands out under the orbit of

the eye, and on each side the nose; when there happens to be matter pent up in this cavity, it occasions intolerable pain, by reason of a very fine and sensible membrane which lines its inside.

The fifth bone of the upper jaw, with its companion, make up the bony prominence of the nose. It is hard and solid, and perforated in several places for the passage of nerves and blood-vessels. It is joined above to the internal process of the frontal-bone. Its sides adhere to the first and fourth bone of this jaw, in the middle to its companion, and underneath to the gristles that make the lower part of the nose.

The last is that bone which, with its companion, frames the roof of the mouth. It is broad, thin, and solid, but somewhat rough and uneven at that end where it resembles a semicircle. It is joined behind the wing-like processes of the wedge-like bone, and on the inside to the partition of the nostrils. It is also joined to the cheek-bone, and to its own fellow at its back part. It has likewise two perforations, one on each side, which have communication with the two holes of the wedge-like bone.

The lower jaw, which makes the lower part of the capacity of the mouth, comes next to be treated of. This differs from the former, in that it is moveable, the other not so. At both ends of it there are two processes, the foremost of which running upwards, and from a broad basis growing sharp, ends in a cone or point. It is this
point

point that receives the tendon of the temporal muscle; from whence it is that a luxation of the lower jaw is very dangerous, if not speedily reduced.

The other, which is the backward process, is called *articularis*, having a neck and a longish head covered with a gristle, by which it is received and articulated into the sinuses of the *os petrosum*, and is strongly knit thereto by a membranous ligament. It has at the sides of those processes, small shallow cavities, for the lodgement of its muscles. Towards its back part it has a cavity within it, which contains a marrowy juice for its nourishment. It has four perforations, or holes, whereof two are at the roots of the processes, by which a vein and artery, as also a branch of the fifth pair of nerves, pass to the teeth. The other two are in its fore-part, giving way to two twigs of the said branch, which go out to the lower lip.

Both the lower and upper jaw have sockets for the teeth to stand in, which, by reason of their depth, have been called *alveoli*. When any of the teeth fall out, as the foal-teeth, &c. these pits soon become obliterated, and the jaw grows smooth.

The teeth are of a substance harder than any of the other bones, which is absolutely necessary, considering their office is to break and cut all the aliment. That part of them which stands out above the gums, is smooth, and free from any covering, but all within the sockets of the jaws is
more

more rough, and covered with a thin membrane of exquisite sense. Those which are called *grinders*, have a manifest cavity within them, but the fore and dog-teeth, have but very obscure ones. By the small holes which are discernable in the roots of the teeth, is conveyed into these cavities a capillary branch of an artery from the carotids, a small vein from the jugulars, and a twig of a nerve from the fifth pair; which being expanded through the thin membrane that invests the said cavity, is partly the occasion of that exquisite pain which is felt in the tooth-ach. These vessels before-mentioned, viz. the vein, artery, and nerve, are inclosed in one common capsula, or sheath, when they enter the jaw, and running along a proper channel under the roots of the teeth, send off to each of them, in their passage, those small twigs aforesaid.

Though the teeth of horses are differently situated from those in men, and are more numerous, yet, as to their offices, they admit of the same division, and are of three kinds, viz. the incisores, canini, and molares.

The incisores, cutters, or shredders, are those we call the fore-teeth, being seated in the fore-part of the jaw. They are broad, and sharp-edged, the better to crop and bite off the grass. They are twelve in number, six on each side. These have but one root, or fang.

The next are the canini, or dog-teeth, which, in horses, are called the *tushes*; and are of use
to

to break whatever is too hard for the fore-teeth to cut or shear asunder. These have but one fang, and are seldom found in mares.

Those of the third rank are the double teeth, named *molars*, or grinders, because they grind the corn like a millstone. They are twenty-four in number, twelve on each jaw; their seat is in the inner part of the mouth, being environed on their outside by the cheeks, to prevent the food falling out of the mouth while it is grinding. These have several asperities on their upper part, by which means they are rendered more fit for their peculiar office.

The two foremost of these teeth, which stand next the tusks, are those by which a horse may be known to be under seven years old, having till then, several thin shells or scales growing round the outside of the top of them, forming a hollow in the middle. It is to be observed, that the nearer a horse comes to that age, the more those edges are wore down, till at last they become even with the rest; so that the age of a horse is no longer to be known by that sign.

The several periods of a horse's age, while only a colt, are also distinguishable by the fore-teeth; but these things being sufficiently known by every person who has been used to horses, we shall proceed to the bone of the tongue, which is called *os hyoides*, from its shape, being like the Greek letter *υ*. It is seated at the root of the tongue, being the foundation or supporter of it. It is
made

made up of three bones, the middlemost being gibbous outward, but inward somewhat hollow. The other two are called its *cornua*, or horns, and are all tied to the adjacent parts, by a substance which is partly nervous, and partly fleshy.

This little bone is of great use, all the muscles that move the tongue being either inserted into it, or taking their origin from it. It also gives rise to some of those muscles that move the larynx, or throttle, and is a resting place to the epiglottis, or throat-flap, when it is lifted up in breathing.

S E C T. XXVII.

OF THE VERTEBRÆ OF THE NECK.

THE neck is made up of seven vertebræ, or rack-bones, reckoning from the head downward, that next the head being first; they have each of them a large cavity, to give way to the spinal marrow. Besides this large hole, which they have in common with all other vertebræ, they have each two small perforations in their transverse processes, through which the cervical veins and arteries pass to the head; and between their joinings there is a third found, partly out of the lower side of the upper vertebra, and partly out

out of the upper side of each lower vertebra, by which the nerves pass outward from the spinal marrow.

The first of these bones in a human skeleton, is called *atlas*, because the head is articulated to it, and, as it were, supported by it; and many, therefore, retain the same name in a horse. Its body is slender, but more solid than the tips of its processes, which are porous and open; instead of its hinder spine or process, it has only a semicircular prominence jutting out, least the larger straight pair of muscles which pass over it, should be hurt in bending the head forward; but it has all its other processes in common with the rest. On the fore-side of its great foramen, inward, it has a small socket, rather semicircular, and lined with a cartilage to receive the tooth-like process of the second vertebra.

The second vertebra is, because of this process, called *dentata*; it is an appendix which springs from between its two ascending processes, long and round, its head resembling the upper part of the dog-tooth in man, or the tush in a horse. It is also covered with a cartilage on that part which is received into the afore said sinuses of the first vertebra, upon it the head turns round, as upon a hinge.

The basis of this tooth-like appendage, is encompassed with a ligament that knits it to the occiput. This and the following vertebræ have spines, or hinder processes, each of which are divided into two, for the better connection of the

ligaments and muscles to them, and are, in every respect, like the second, save only that their lateral processes are larger and divided, as well as the hinder.

S E C T. XXVIII.

OF THE VERTEBRÆ OF THE BACK AND LOINS,
AS ALSO OF THE BREAST-BONE, COLLAR-
BONE, AND RIBS.

THE back is made up of seventeen vertebræ, or rack-bones, which are different, both in their bodies and processes, from those of the neck, the last being longer and more flat on their inside, that the gullet might rest more securely on them; and as for their processes, though they are equal in number, viz. two tending obliquely upward, two downward, two transverse or lateral ones, and one acute hinder one, called the *spine*; yet those which are now to be described, have their spines, or hinder processes, single and not divided, and their lateral ones more short and blunt; and instead of the holes which are in those of the neck, have only a shallow cavity, into which the ribs are articulated.

Neither are the bodies of these vertebræ of such a firm and solid make as those of the neck, though they are more bulky; besides that, they
are

are full of small perforations for the admission of blood-vessels to the spinal-marrow, and have each two holes at their joinings, for the egress of the nerves which proceed from thence.

They have also on each side a sinus, or cavity, for the articulation of the head of the rib, which sinuses are wanting in those of the neck, having no communication with any other but among themselves.

The transverse processes of two or three of the lowest of these rack-bones, grow gradually shorter, and their spines more blunt and even, declining not so much downward as those more forward. As for the great perforation in their middle, it is proportionable to their size, and the marrow contained within it.

The vertebræ of the loins, which compose the third part of the spine, come next to be considered. They are seven in number, and are larger than any of the foregoing; their hind processes, or spines, grow shorter, but are broader and thicker than those of the back, somewhat bending upward, as most of the others decline downward; but as to their lateral processes, they exceed those of the back in length. They are joined one to another by a clammy gristle, as also the uppermost of them to the last of the back, and the lowest to the first of the os sacrum, by the same kind of articulation. These have several perforations for the ingress and egress of nerves and blood-vessels, as also a large cavity in each for the spinal-marrow.

Directly opposite to the upper vertebræ of the back, is seated the sternum, or breast-bone, which is very different in a horse, from what it is in a man, being, in all human skeletons, flat on its outside, and pretty straight; whereas in our present subject it is not only somewhat arched, but in its middle is prominent and sharp, like the keel of a ship, being hollow on its inside. This bone in foals, as in children, seems to be made up of divers cartilages, which, in time, become so united as to leave no marks of their ever having been divided.

In its upper part it is pointed and sharp, but in its lower blunt and obtuse, terminating in a gristle called the *cartilage ensiformis*, or sword-like gristle. Its use is to serve as a safe-guard to the breast, as also for the articulation of the collar-bones, and the nine uppermost ribs, having on each side nine little sinuses or cavities for that purpose.

The collar-bones, which are the first that are united to the breast-bone, are two, one on each side; they are called *claviculae*, either because they resemble the ancient keys, which were in shape like an Italian *f*, or because they lock up and close the chest. Their heads are spongy and open, but their middle somewhat thin and flat, and more solid; by one end they are joined to the top of the breast-bone, and by the other to the first rack-bone of the back, differing from those in man, which are joined with the shoulder.

They

They help to support the shoulder-blades, and keep them from sliding forward upon the breast-bone and shoulder-bones, which, upon a fracture, or dislocation of these bones, frequently happen:

Next the collar-bones are seated the ribs. They are, in all, thirty-four, viz. seventeen on each side. Their substance is partly bony, and partly cartilaginous. The nine uppermost are called the *true ribs*, because each, with its fellow, make a kind of circle, being joined together by the mediation of the rack-bones of the back behind, and the breast-bone before; each rib has two knobs, one of which is received into the sinus of the body of the vertebra, and the lesser knob into that of the transverse process; they are in like manner joined to the breast-bone, their cartilages ending in little heads, which are received into its smooth sinuses.

The eight lowermost are called the *bastard-ribs*, because they do not circumscribe the body, as the uppermost do, by their two-fold articulation into the rack-bones and breast-bone. They are of a more soft and pliable substance than the true ribs, and the nearer they advance towards the loins, they grow shorter, leaving an open space for the stomach and guts, which might have easily been hurt by them, as often as distended with meat and water.

They are all rough and uneven on their outside, especially towards the back, that the ligaments, by which they are tied to the back-bones, might

might take the firmer hold, but on their inside they are smooth, and covered with the pleura, least they should hurt the lungs, and the other parts that bear against them. They are also narrow and thick toward the back, but broader and flatter toward the breast, and are furrowed on the lower part of their inside, in which some blood-vessels and a nerve are conducted. They are a defence to the bowels within the breast, and those in the lower belly.

S E C T. XXIX.

OF THE BLADE-BONE, THE SHOULDER-BONE,
AND THE BONES OF THE FORE LEG
AND FOOT.

THE blade-bone, or shoulder-blade, is seated like a target upon the side of the true ribs, reaching from the vertebræ of the back, almost to the collar-bone. On its inside it is concave and hollow, but arched on its outside. It is joined to no bone, but by its lower end, where it has a cup that receives the round head of the shoulder-bone. It is, however, knit to several parts by the muscles which are inserted into it, or take their origin from it. It has three processes, the first is that part which forms its neck, the second is extended along the middle of its outside, and is called its spine. The third is toward

ward its lower and inside, and from the resemblance it has to an anchor, is called *ancyroides*, or its anchor-like process.

It has about its neck five appendages, three of which afford an original to some muscles, and from the other two arise the ligaments by which the head of the shoulder-bone is tied into its cup. Round its brim there is a thick gristle, which not only makes its cavity the deeper, that the head of the shoulder-bone, which is jointed into it, should not so easily slip out, but also facilitates its motion.

The shoulder-bone has two heads, the uppermost inserted into the cup of the blade-bone, and the lowermost joined to the upper part of the cubit, or leg-bone.

The uppermost head is large and orbicular, covered with a gristle, and is, at first, only an appendix to the cubit; but in time becomes a process of the bone itself; on the outside of this orbicular head, there are two less prominences, into which two ligaments are inserted; and on its inside there is a cavity, out of which arises the strong ligament that ties it into the cup of the blade.

The lower head of this bone, which in a human body is articulated with two bones, viz. the radius and ulna, is, in a horse, only united to one; yet it is so firmly coupled to that one, that it cannot be easily displaced; for there being three processes and two sinuses between it and the cubit, they

they both receive and are received of each other. Besides these processes, which serve to its articulation, there is on each side one, from whence arise the muscles which lie on both sides of the leg. About its middle there is a perforation, by which the blood-vessels have recourse to, and from the marrow contained within its large bore, and are those by which it is nourished.

The next bone, called the *cubit*, or leg-bone, reaches from the elbow to the shank. This bone has, on its hinder and upper part, a notable process, long and round, which enters the larger cavity of the lower head of the shoulder-bone, and makes that bunching-out which is usually called the elbow. This process is somewhat rough and uneven, partly that the ligaments that encompass the joint might be the more strongly knit to it, and partly for the origination and insertion of the muscles which serve to move those parts, for which cause the bone is rough at the root of this process, as also the whole circumference of the sinus, into which it is inserted.

Between this and the shank-bone, there are two ranges of little bones, one above another, three in the first range, and four in the second, all which are very firmly joined together. These differ one from another in their magnitude, form, and situation, and are said to be first cartilaginous, but in process of time they grow hard and bony. Their substance is spongy, as are all those which at first are only cartilaginous, of which kind are
the

the appendages of bones, the breast-bones, &c. They are covered with a ligament which is partly membranous and partly cartilaginous, whereby they are so compacted, that, without dividing the said ligament, it is hard to distinguish them one from another, but at first view they may be all taken for one bone.

On their outer surface they are bunching, but on their inside hollow. The first that is placed on the inside of the upper rank is somewhat long, and curved inward, articulated with the cubit-bone, and below with the second of the lower rank, touching both the third and fourth of the same rank, and joined to the second of its own rank. The second has a cavity on its upper part, which receives an appendix of the cubit-bone. The third is joined above by a plain surface to the said cubit-bone, and with the second is joined underneath to the fourth bone of the lower rank. The fourth bone, or first of the lower rank, is round and smooth, and is joined above to the outside of the lower part of the first bone, and below to the shank-bone. The fifth has a large sinus on its upper part, into which the first bone of the upper rank is articulated, and another below for the reception of part of the head of the shank-bone. The sixth is joined with a plain superficies on each side of the seventh, and the foregoing above to the second, and below to the shank-bone. The seventh is joined on its upper end to the third of the upper rank, and below to

the head of the shank-bone, and on its inside to the foregoing, viz. the fixth.

These bones are of use, not only to facilitate the motion of the knee, but also to strengthen it, for by their convex outside, the joint can never be extended too far the contrary way, and the number of the lower rank exceeding that of the upper (as the upper end of the shank-bone is broader than the lower end of the cubit) and as the bones themselves are different in their size from each other, like a piece of good mason-work, they cannot easily be pulled asunder; whereas, if the bones of both ranks were of one size and number, and their seams and junctures to run streight through, it would be impossible but the least false step must disorder them in such a manner as to occasion an irrecoverable lameness. As to their motion, although by this sort of articulation they seem as if they were incapable of any singly, yet it is very certain the whole have a small tendency inward, as often as the shank is bent, though that be scarcely discernable, and by virtue of the cartilaginous ligament which covers all those little bones, and ties them together, they recover themselves as with a spring; so that the motion of that joint must be more easy and quick than it could possibly be by any other kind of articulation.

We shall proceed to the shank-bone, which comes next in order, and is that which reaches from the knee to the great pastern, and answers to the back of the hand in man. As that consists
of

of five bones, the shank-bone of a horse is made up of three, having one much larger and longer than either of the other. It is joined, by its upper part, to the lowermost range of the small bones, and below to the upper end of the great pastern, by a reciprocal articulation, having two round heads, and three small cavities, whereby these two bones both receive, and are received into each other, as the lower end of the shoulder-bone and the upper end of the cubit.

To each side of this bone is fastened a splint, in shape like a bodkin, being thick and round at the upper end, but small and pointed at the lower; between these run the tendons of the muscles that move the foot.

The next is the great pastern. This bone is gibbous and crooked on its upper part, where it is articulated with the shank-bone; it has three small processes, which are received into the cavities of the said shank-bone; and two cavities which receive its two processes; and has two small triangular bones fastened to its back part, whereon the foot-lock hair grows; these two bones are a stay to that joint, which articulation being like a hinge, would be apt to strain the ligaments every time a horse should stumble.

The little pastern is not much unlike the other, only that it differs in its length; its upper end is articulated with the great pastern, and its lower end consists of two heads, as that of the great pastern, which are received into the coffin-bone,

in the same manner as itself receives the lower end of the great pastern.

The coffin-bone, which is the lowermost of all the bones of the leg, is so called from its hollow-ness. It is semilunary, or half-moon fashioned, thick upwards, where its cavities receive the lower end of the little pastern, but thin and broad at its bottom, and toward its edges, for its more firm fixing upon the ground. Its substance is open and porous, having innumerable little holes through its sides, for the passage of the vessels; as also many small sinuses, wherein are inserted the tendons of the muscles that move the lower part of the leg and foot.

S E C T. XXX.

OF THE RUMP-BONES.

THE croupe, or the bone which lies under the crupper, otherwise called the *os sacrum*, is seated at the lower end of the back, and adheres to the last vertebra of the loins above, and below to the first of the bones of the dock, or rump. It is much the broadest of all the bones of the back, of a figure somewhat singular, growing, from a broad beginning, narrow towards the first bone of the tail; it is hollow on its inside, but uneven outwards, because of the muscles of the

the back and its ligaments cleaving to it. It has hardly any oblique processes but on its first vertebra, and its other processes are either very small, or very obscure. On each side, towards its edge, there are certain sinuses, to which the haunch-bones adhere by an intervening cartilage. It has six vertebræ, its spines grow gradually less the nearer they approach to the rump, as the vertebræ themselves do. The spinal-marrow has a passage in it, as in the other vertebræ, out of which there are several less perforations for the egress of the nerves.

The rump-bone are eighteen in number, and are joined to each other by an intervening cartilage, or gristle; but so loosely, that a horse can move his tail which way he pleases; these have no hollowness in them, only the uppermost has a small cavity that receives the process from the last bone above described. They are soft and spongy, therefore the better adapted to motion, as they are also from their make, growing gradually less, till they end in a small pointed cartilage.

S E C T. XXXI.

OF THE OSSA INNOMINATA, DIVIDED INTO
THE HIP, HAUNCH, AND SHARE-BONES.

THE ossa innominata, are seated on the sides of the os sacrum. The first is called the *os ilium*, because the gut ilium lies under it; it is the

the uppermost and broadest, and joined to the os sacrum by a true suture; it is semicircular, being convex and uneven on its outside, which is called its *dorsum* or back, and concave and even on its internal side, which is called its *costa*; and that part, by which it is joined to the upper vertebræ of the os sacrum, is called its *spine*, or edge.

Its spine is, in many places, rough and uneven, there being several muscles that take their origin from it, as also from its dorsum, or back-part, which is in like manner accommodated for the same purpose.

The second is called the *os pubis*, or share-bone, which forms the inferior and fore-part of the ossa innominata; it is joined to its fellow by an intervening cartilage, and forms the fore-part of that cavity, which, in human bodies, is called the *pelvis*, or basin. It is perforated with a very large hole, and on its hinder and inner side has two processes, from whence the cavernous bodies of the yard, and some muscles, take their original.

The third is the inferior and posterior, called the *ischium*, or *coxendix*. It has a large cavity, which receives the head of the thigh-bone. This cavity has its circumference tipped with a cartilage, called its *supercilium*, or brow, where there are several sinuses and protuberances, ordained partly for the production of muscles, and partly for ligaments.

In

In all young animals, these may be divided into several bones; but in such as are old, the cartilages, by which they were at first only joined, change their name and become bony, by which means they grow united, and make but one bone.

S E C T. XXXII.

OF THE BONES OF THE THIGH, HINDER LEGS,
AND FEET.

THE thigh-bone is that which reaches from the hip to the flifle; it is long and round, and, in some parts, a little convex. Its upper part is made up of a large head and neck, with two processes, and below it determines into a head, which has two productions, with a cavity between them.

Its upper head is round, and somewhat longish, that it may the better fill up the acetabulum, or cup, which of itself is deep, but the more so as it is incompassed with a cartilage. There is also a thin cartilage, which covers the round head of this bone, that its motion may be glib and easy within the cup, and because of its great weight which the thigh sustains; it is therefore tied by two strong ligaments, one of which is round, arising from the inside of the acetabulum, near its bottom, and implanted into a little sinus on the

the upper and fore-part of the said head of the thigh-bone; and the other, proceeding from the edge of the acetabulum, by the assistance of a membranous substance, incloses the whole articulation.

The slender part under the head of the thigh-bone, is called its *neck*; it is long and oblique, and is accounted a process of the bone. There arise, at the lower end of the neck, two other processes, which go by the name of the greater and lesser *trochanters*. The uppermost, or larger process, is rough, because of the insertion of some muscles into it. The undermost is somewhat uneven, especially toward its root, where the *vastus internus* rises.

The thigh-bone below its middle becomes thicker, its lower end terminating in an ample and broad head. This head is formed into two processes, between which there is a large space that receives a protuberance of the head of the leg-bone. The outside of these two processes is rough, but their inside smooth, being covered with a cartilage for the more easy motion of the joint. From them proceed some of the muscles that move the leg, and into them are inserted some of those that move the thigh. Their sides are full of small holes, from whence arise the ligaments that strengthen the patella, or *knee*.

In the middle, between the two heads, there are two cavities, the foremost of which receives the protuberance of the *knee*-bone, being covered

vered with a gristle for that purpose. The other, which is deeper, as also rough and unequal, receives the protuberation of the leg-bone. Besides these, there is a cavity on the outside of the outer head, and another on the inside of the inner head, through both which the tendons of several muscles of the leg descend.

Where the lower end of the thigh-bone is joined to the upper end of the leg-bone, on the fore-side is placed a small bone, somewhat round, called the *patella*, or kifle-pan; it is plain without, but on its inside it is a little convex, having a ridge which falls between the juncture of the two bones; its inside is covered with a gristle, and its outside with the broad tendons of some of those muscles that extend the leg, which keep it firm in its place, by adhering closely to it. This bone not only strengthens the articulation of the thigh and leg, but also serves as a pulley for the tendons of the muscles which pass over it, and facilitate their action by removing their direction from the centre of motion.

The tibia, or leg-bone, to which the thigh-bone is articulated, comes the next to be described. In a horse it is very different from what it is in men, being long and round, and not triangular, as in the latter. Its upper part is much broader and thicker than its lower, and both receives and is received by the thigh-bone, having two cavities, and betwixt them a prominence, which is also covered with a cartilage, as all the other appen-

dages to the joints are. Within the cavities of this joint, there is always to be found an unctuous or oily matter, which is separated to further the motion thereof, by keeping it moist and slippery. Its lower head is round, and likewise covered with a gristle, to facilitate the motion of the instep.

This bone has several sinuses and appendages, as well as the thigh-bone, not only for the passage of the tendons of some muscles, but also to give rise to others which move the foot; and has likewise a considerable bore, which reaches from the upper to the lower appendage, and is filled with marrow to keep it moist, and preserve it from becoming too brittle.

The bones of the hock are in number the same with those in the knee, and are disposed in two ranks, viz. three in the first rank, and four in the undermost. They are also articulated with the instep, as the others are with the shank, only that they are seated in the bending of the joint. These bones are of use to hinder a horse from falling upon his hams, when he raises himself upwards, and goes upon his haunches; and are also like a spring to that joint, by which he recovers himself in all actions where the hind-legs are chiefly concerned.

The instep-bone, to which these small bones are articulated, is made up of three bones, which adhere so closely together, that they can hardly be separated or distinguished until the periosteum is
very

very clean scraped off; and are much the same as those of the shank, already described. The pasterns and coffin-bone, &c. agreeing in every respect with those of the fore-foot, we shall omit mentioning them in this place. But before we leave this subject, it will, no doubt, be expected we should take some notice of the hoofs, they being of a hard substance, and a very great defence to a horse's foot.

The hoofs of a horse are those parts which answer to the nails in human bodies, and are no other than a bundle of husks, which cover and sheath the papillæ pyramidales of the skin on the extremities of the feet, which dry, harden, and lie close one upon another. They are of a middle nature between bones and gristles, that they may not splinter and break because of their hardness, and at the same time be able to bear and support so great a burthen without much damage; and are without sense, that they may endure travelling among stones and rough ways. They adhere firmly to the parts included within them, and are fastened to the coffin-bone by a ligament that proceeds from their root, which is in some measure encompassed with the skin.

Underneath the hoofs there are many nerves, tendons, and muscles, which take their course quite to the sole of the foot.

T A B L E VII.

*The Explanation of the Figure of the Skeleton of
an Horse.*

Figure III. is the occipital, or noll-bone.

IV. The lower jaw.

V. The upper jaw has twelve bones, exclusive of those common to the skull. The first is zygomaticum, the second lachrymale, the third is continued with bones of the nostrils, and is called by no particular name; the fourth is called *os malæ*, the fifth is the prominence of the nose, with its companion, and is joined to the internal process of the frontal-bone, &c. &c.

VI. The *os hyoides*. The derivation of the name is from the Greek letter *υ*, resembling the bone of the tongue.

VII. The ancyroides, or blade-bone.

VIII. The sternum, or breast-bone.

IX. The *os humeri*, or shoulder-bone.

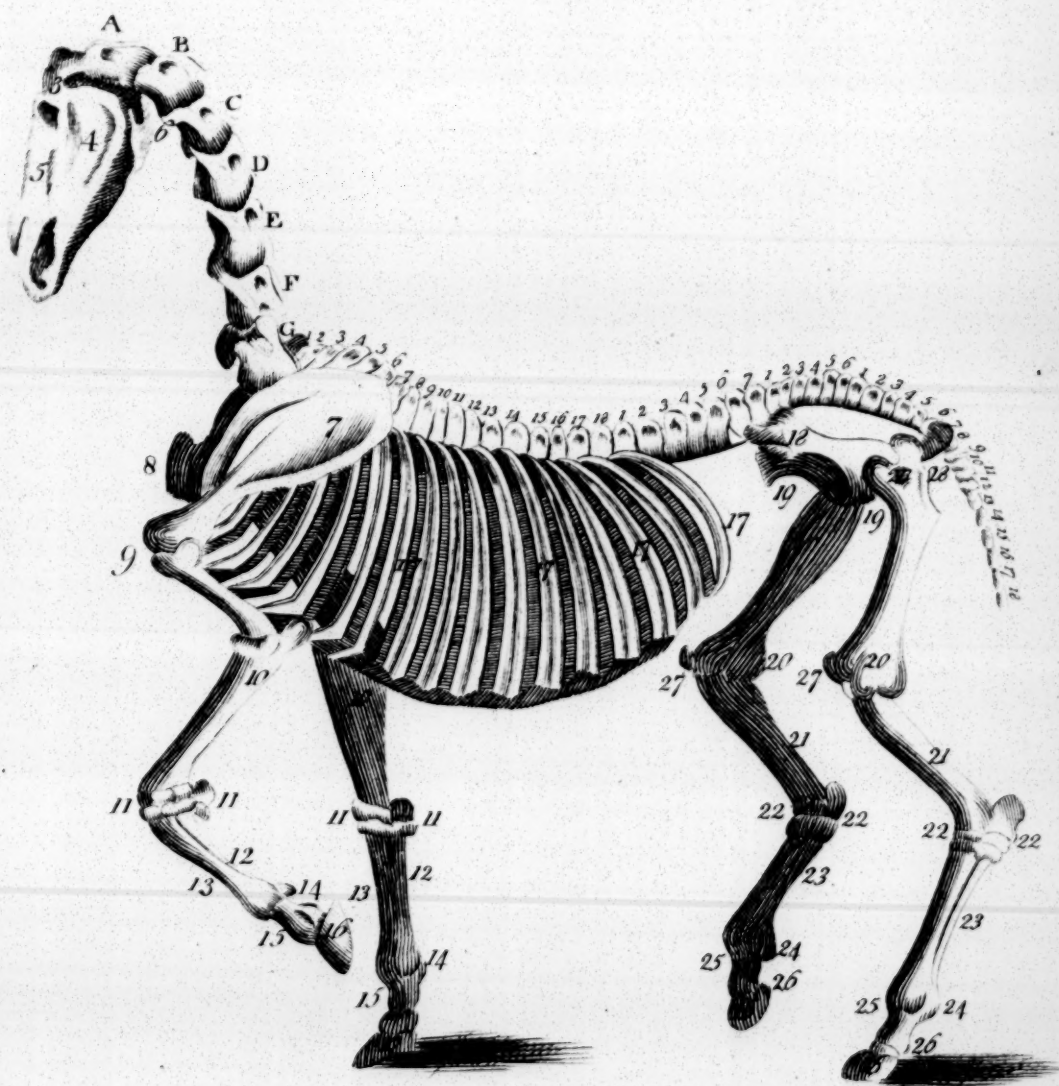
X. The cubits, or leg-bones of the fore-part.

XI. The small bones that make the knee.

XII. The splint-bones of the fore-legs.

XIII. The shank-bones of the fore-legs.

XIV. The



*This is a perfect Representation of the Skeleton of an Horse
See Table VII.*



XIV. The triangular bones that are fixed to the great pasterns.

XV. The great and little pasterns of the fore-legs.

XVI. The coffin-bones of all the feet.

XVII. The seventeen ribs.

XVIII. The *os ilium*, so called because the gut ilium is under it.

XIX. The *os pubis*, or share-bone.

XX. The thigh-bone.

XXI. The bones of the hind-legs.

XXII. The bones that form the knee, and hocks of the hind-legs.

XXIII. The splint-bones of the hind-legs.

XXIV. The small bones that are formed round the upper end of the great pasterns.

XXV. The great pasterns of the hind-legs.

XXVI. The little pasterns of the hind-legs.

XXVII. The thigh bone of the hind-legs.

XXVIII. The coxendix.

A. B. C. D. E. F. G. shew the seven vertebræ of the bones of the neck.

From the letter G. begin 1, 2, 3, 4, 5, 6, 7, 8,
9, 10, 11, 12, 13, 14, 15, 16, 17, 18,
which

which are the vertebræ of the thorax and back.

And the figures 1, 2, 3, 4, 5, 6, 7, are the vertebræ of the loins; and again from 1, 2, 3, 4, 5, 6, the six processes of the os sacrum; and from 1 to 18, are the representations of the eighteen bones of the rump.



S E C T. I.

OF
THE SIGNS OF
SICKNESS IN HORSES,
THE
CAUSES THEREOF,
AND
METHODS OF CURE.

IN treating of the distempers of horses, it will not be improper to premise their general signs of sickness. The first sign of illness in a horse is, a loathing of food; next to that, a wild haggard look, cold ears, a hot and foamy or clammy mouth; the hair on his flanks rough and starting, its ends paler than usual; hard, black, or greenish dung; limpid urine, weeping eyes, a heavy drooping head, an aptness to stumble, an unusual dulness and civility to other horses, frequent rising and lying down in the stable, and looking towards his flanks, which are doubled; a beating of the heart sensible to one's hand, between

tween the left shoulder and fengle ; an indifferency and unconcernedness in what is done to him.

If a horse after long sickness, urines without striding, or extending his yard, and was not used to do so in health, it is a fatal sign. If the hair of his tail or skull is easily plucked off, it portends death. If he never lies down, or starts up immediately when he does, it speaks danger ; but a continued lying in the declension of a disease, is a very good sign. If he turns up the whites of his eyes, he is in pain, and will be long ill.

These general signs give us to know that a horse is sick, but the particular disease is to be discovered by its peculiar signs.

We shall now proceed to give a rational account of health and sickness.

As the health of a horse consists in a due and easy motion of the blood, so a disease may be properly said to be an irregular circulation of the blood throughout the whole body, or in some part only ; and thus a creature may be properly termed diseased, when its blood flows faster than usual, or when it moves more heavily and sluggishly, or when it is irregular in its motion, being sometimes slow, and sometimes more quick. Or, lastly, when its progress is impeded and hindered in some particular part of the body only, as is common in all swellings, &c. And therefore whatever occasions an unusual circulation of the blood in any of the foregoing respects, may be accounted the cause of a disease.

Now

Now the causes which bring on diseases being, in a manner, infinite, since most accidents to which bodies are exposed from other bodies, may be the occasion of some distemper; and likewise since diseases may proceed from the action of the same body upon itself, in a way that is either voluntary or involuntary; we shall therefore forbear all unnecessary and unprofitable deviations, and only take notice of those causes which are most apparent, and the most common.

The ancients being unacquainted with the true structure and œconomy of animal bodies, ascribed a great deal to those qualities which they believed to be in all bodies proceeding from the four elements, as also to the errors of feeding, exercise, rest, &c. &c. which they called the *non-naturals*. Our farriers have puzzled their readers with a sort of philosophy which neither themselves understood, nor will ever be of use to posterity. Some begin with generation and corruption, and others with the formation of animal bodies out of the four elements, viz. fire, air, water, and earth; and subsequent to them to be made up of four humours, viz. blood, phlegm, choler, and melancholy; and accordingly their bodies were of different temperaments, hot and dry, cold and moist, as this or that humour was predominant.

We shall very readily own, that some of these marks often denote the faults and imperfections in horses, but that they are reducible to such temperaments and humours as are ascribed to them, is a mere dream, and doubtless may have

been the death of some thousands of horses in this kingdom, since it is but reasonable to suppose that most of the farriers judge of the inward distempers of horses more from their colour and complexion, than from any other signs whatsoever.

All that can be justly observed in horses, as to their temperaments, are the two extremes of too much fire or too little, the rest inclining more or less to the one or the other. When a horse has too much fire, and is therefore untractable and unmanageable (if that disposition is not itself a disease) it exposes him to a great many accidents, which would be needless to name; besides that by the continual restlessness of his spirits, and the constant hurry of his blood, he must therefore be subject to several distempers, more particularly fevers, and often those of the worst kind. If, on the other hand, a horse be of a dull sluggish disposition, he must be exposed to distempers that are peculiar to a slow and languid blood; and the nearer any horse approaches to either of these temperaments, he is the more obnoxious to their distempers.

Horses may also be said to be of different temperaments at different periods of their life; and therefore a young horse being full of blood, and his solid parts as yet of a loose texture, must be more subject to diseases than one who has arrived at his prime; and those diseases must be of a worse consequence to him, if not carefully attended to. And likewise a horse who is grown old, though
such

such an one is not so apt to be diseased as a young horse, yet their diseases more frequently end in death, because the blood at that time proves languid, and loses the vigour that is peculiar to youth and the middle age, which must needs deprive them of the benefits and assistances of nature: But a horse in his prime, having then all his parts well conformed, and his blood in its best state, neither too luxuriant, nor too much impoverished, and likewise the quantity of blood being in that age nearly adjusted to the capacity of the vessels in which it flows, he is therefore neither apt to be diseased, nor are his diseases apt to be of long continuance.

But the practitioner ought carefully to take notice, that these observations concerning temperaments may, for the most part, be very just, yet it is undeniable that some are more robust and hardy while but colts, than others are at the prime of their age; and some retain much of their vigour, even when they are grown old, and as easily get over any accidents as horses that are young. It is likewise to be observed, that some horses of a faint watery colour, sometimes prove hardy and durable; and therefore, besides all common rules and observations, it may be necessary to the forming a right judgement of the temperaments and constitutions of horses, to have recourse to examination and trial.

After what has been said as to temperaments, we shall not trouble the reader with those confused

and unprofitable speculations about members, powers, actions, and operations, and the rest of those they termed *naturals*, but proceed to the non-naturals, which, according to the ancients, were reckoned six in number, viz. air, meat and drink, sleep and watching, motion and rest, things excreted and retained, and the affections or motions of the mind, and were such as hurt by necessity; so that this enumeration is more accurate, as applied to brute creatures, than to man, who has the use of his reason, and may therefore avoid several of the accidents proceeding from them.

These are said to be profitable or hurtful to all creatures; but our business at this time, is only to take notice of them in the latter sense. First, as to air.

The air may be many times the cause of diseases; for if that be too much rarified, it hurts the blood's circulation, not being of sufficient force to help it through the lungs; whence its motion becomes slow, and perspiration decreases, which leaves a load upon the vessels, and renders the blood viscid and tenacious. The same effect also happens from the air being too gross, for then the circulation of the blood is impeded in the lungs, by its too great pressure and weight upon them.

Food may also become hurtful to horses, both as to its quantity and quality; for if it be musty and raw, corrupt and unclean, it must breed crudities,

crudities, and thereby render the chyle viscid, which will of necessity retard the motion of the blood; and if it be of too hot and spirituous a nature, it must, on the contrary, render the blood too thin, and thereby increase its motion too much. Immoderate feeding, be the food ever so wholesome, especially when the horse wants exercise, must vitiate the blood; for in such a case there is no room given for digestion, so that a quantity of chyle must enter into the mass of blood before it has been thoroughly prepared in the stomach. The same effects may be produced from excessive drinking, especially of stagnated waters, or waters proceeding from some sort of minerals.

Long-continued exercise, especially when it is too violent, occasions a too great dissipation of the spirits; and if a horse's stomach is very full, or if he be full of blood, it brings on innumerable disorders, as shall be treated of when we come to the particular diseases. But the want of proper exercise is equally pernicious, as it hinders digestion, and occasions a too great distention of all the vessels, which causes surfeits, and other distempers.

A too quick discharge of the dung, before there is a due separation of the chyle from the excrementitious parts, occasions sickness; for in such a case, there is ejected and thrown out the useful with the useless, whence must proceed a refrigeration and weakness of the body, by reason of a debilitated circulation of the blood. On the other hand,

hand, when a horse is costive, and his excrements retained too long, a plethora, or over-fullness, will be apt to ensue. But these are rather to be accounted diseases than causes, especially in brute creatures.

Immoderate sleep may often be the cause of sickness; because in sleep the external senses are weak, the nervous fluid moves slowly, the heart is seldom contracted, and the circulation of the blood goes on with less briskness. Watching produces the contrary effects.

Besides the above-recited causes, which are indeed the most common and ordinary, there are an infinite number of others, which may bring on diseases, as has been observed; and such are all outward accidents, as falls, bruises, wounds, and the like; as also unreasonable evacuations, and all improper application of remedies, which is frequently practised among farriers for prevention, while horses are in a state of health.

S E C T. II.

THE METHOD OF CURING DISEASES INCIDENT TO HORSES.

A Particular regard is to be had to those symptoms that are the most urgent, and any way endanger life; and therefore if the signs discover a horse to have an inflammation in the lungs,

lungs, or pleura, which may be judged of by his being suddenly seized with a difficulty of breathing, and an inability to continue in one posture; or if a swelling should arise on his throat, which might hinder him from getting down his food, or render him liable to suffocation, such evacuations or other means as are proper to remove those symptoms, must immediately be used, setting aside all other considerations of sickness. And in like manner, if a horse should be seized with a violent hæmorrhage of blood, the first intention must be to stop it; for the removing of those not only preserves life, but in some cases puts an end to the disease.

If in any distemper the indication is taken chiefly from crudities lodging in the stomach and guts, then such medicines only as clear those passages are to be administered, without regard to any other; but if this be accompanied with any other disease, then all the medicines that are to be given in such a case, must not be levelled at the diseases of those parts directly, but at others in conjunction with them.

If the indication is taken from the blood, it is then to be considered that all its disorders depend upon its circulatory motion being increased or diminished; and all the changes in the texture and quality of the blood, as also in its quantity, are attended either with a diminution or increase of the blood's velocity; and therefore if the quantity of blood is augmented, bleeding and other evacua-
tions

tions are necessary; but if the quantity thereof be diminished, then restoratives, rest, and nourishing food, may be required. And if this last proceed from any error in the stomach, causing loss of appetite, in such a case those things are to be administered which create hunger, and help digestion. If the texture of the blood be changed, as is usual in a continued course of sickness, then it may be necessary, besides other intentions, to administer such things as may correct the vitiated mass.

When a disease proceeds from an increase or diminution of some secretion, the cure ought, for the most part, to be performed by such things as enlarge the secretions that are too sparing, and restrain such as are too liberal. And the safest way to restrain an augmented secretion, is by the increase of some other secretion. And indeed this method of revulsion has been safely practised among all physicians; and if it could be rightly understood by farriers, it would be of the greatest importance in their practice.

But here it is to be remarked, that when we speak of an augmented secretion, we understand that as a disease, and not as a remedy; for sometimes a secretion augmented becomes a cure; and in such a case it is not to be stopped immediately, but rather somewhat assisted, when any way imperfect. For instance, if a horse be lax, and has a scouring upon him, when this proceeds from a disorder of the guts only, by a putrefaction of the excrements

excrements too long detained, it may be very proper to administer some moderate purge, provided it be of such a nature as will not too much relax the intestinal glands. But if its cause proceeds from an obstructed transpiration, as is very usual, then such things as promote sweat, and a breathing through the pores, must be likewise administered. The like method is to be observed in most other secretions, as in sweat, urine, running at the mouth and nose, which may be often observed among horses in the decline of sickness.

In the cure of all diseases, nature is the best guide, and therefore the farrier must diligently follow her. Whenever she finds herself oppressed, she endeavours to throw off the load, and tries all the nearest and properest ways for her relief; and it is for the conservation of health, or recovering it when lost, that she is so abundantly furnished with drains and out-lets, for such are most or all the glands, by which secretion is performed; but though nature is to be carefully observed and followed in all her motions, and to be assisted when her operations are too weak and imperfect, or restrained when too powerful, yet she is not to be compelled, but must herself be the beginner; and very often the finisher of the work also. Therefore, whenever the practitioner finds her own efforts fruitless, while she is endeavouring one time by one secretion, and at other times by another, to give vent to that which oppresses her, he is not to be over forward in assisting her in her restrained inclinations, but conclude with himself;

that the matter is not as yet rendered of such a due magnitude or smallness, as to be carried along the canals, and discharged by the vessels which are appointed for that purpose; so that his business is only to help her in such things as will thicken or attenuate, &c. as he shall see occasion, waiting with patience until her more sensible operations become permanent and lasting, and that she become free and easy in all her exertions; and this change is what physicians call the *crisis*, or turn of a distemper.

But when her operations are too violent and powerful, if life is thereby at stake, as in the instances before mentioned, by an excessive hæmorrhage of blood, or an influx into some part, occasioning a suffocation, or in case of an augmented secretion continuing too long, then the rules already laid down must be followed. But if it happens, as may be often observed in imperfect crises, that an hæmorrhage of blood proceeds only from a rupture of vessels that are very small, or that the blood, by reason of its abated heat, flows but moderately; or if a tumour arise, or an abscess be found in any part of the body, by which life is not in danger; these are not to be prevented, but managed in a way that is suitable to the nature of such accidents.

SECT.

S E C T. III.

GENERAL RULES FOR BLEEDING AND PURGING.

THERE is no operation more ready, or indeed more useful, than bleeding, as nothing can, in many cases, give such immediate relief; for by blood-letting, the heat of the blood, and consequently its velocity, proceeding from whatever cause, may be thereby abated; and not only its velocity and heat, but also its viscidities, whether from an acid, or from any other coagulating or thickening matter, may in a great measure be destroyed; and therefore in all cases where the blood is too much agitated and in motion, or where it is too much thickened, blood-letting is required.

But we shall lay down some of the particular indications which chiefly call for that operation; and in doing thereof, we shall not confine any one to times and seasons, or particular influences, which we find so much observed in old physical writers; for according to their doctrine, some part of the animal body must have been diseased every month. All the caution, therefore, that is to be had in that respect, is only to avoid it as much as possible in the extremities of heat and cold, excepting when some urgent necessity requires it.

The signs that require blood-letting are, first, an over plenitude, or fulness, which may be dis-

covered in a horse, because, such an one will be apt to be purgative when he is put to any kind of exercise, and his stomach will somewhat abate; in such a case, bleeding cools and refreshes a horse wonderfully.

Blood-letting is proper in the beginning of almost all fevers, whether simple or complicated; that is, whether the fever consists simply in an augmentation of the blood's motion only, or when the blood is, besides that, vitiated; but care must be taken, if the distemper takes its origin from the want of blood, as very often happens after long hæmorrhages, or after long scouring, or after a too plentiful use of evacuations, or when a horse has been some time in a declining condition; in such cases, though some indications may perhaps require bleeding, yet it is to be used sparingly.

A horse ought to be bled for all swellings and impostumations, when they happen to be situated on any part of the body, so as to endanger a suffocation, or any other ill accident; but if there be none of those appearances, and at the same time have a tendency to suppuration, bleeding ought not to be performed, because that would be manifestly to oppose nature, who herself is endeavouring to throw off what is hurtful to her in another way; but in swellings of the legs, occasioned by the grease, blood-letting is not only safe in the beginning, as it may make a revulsion, but necessary before they are much inflamed, or
come

come to break; because this distemper at first proceeds chiefly from a stagnation of the blood in the extreme parts, from the smallness of the vessels, &c. and not from any manifest disorder in the blood itself. But of this in its proper place.

Bleeding is necessary in all violent pains, whether it proceeds from an internal or external cause, as wounds or bruises, and in case of inward pains, as from an inflammation of the lungs and pleura, or the liver, when they can be discovered; and then the operation may be once or twice repeated; but in pains of the stomach and guts, proceeding from slimy or viscid matter lodged in them, unless the farrier could also be assured these were accompanied with inflammation of those parts, it is better to forbear it; because, in such a case, if a revulsion be made, the blood may be too much divested of its spirits, and nature disappointed of her design of expelling what she finds hurtful to her.

Blood-letting is moreover necessary in vertigoes, and most disorders of the head; and in the beginning of all colds, by which defluxions are apt to fall on the lungs, and rheums into the eyes. And here we cannot omit taking notice of an error in the *Sieur de Solleyfel*, who forbids bleeding in diseases of the eyes. It is not improbable that author may have observed some ill consequences from this operation, but it has been in such cases as proceed from exinanition, that is, when the
state

state of the blood is very low; for then that which is carried into the extreme parts very often stagnates, from the want of a sufficient force in the heart to drive it forward into those parts; and when the succeeding fluid has not force enough to impel the antecedent blood; so that if a disease happen in the eyes from any such cause, the lessening the quantity of blood, which is already too small, must needs occasion some very great disorder in those parts, if not absolute blindness. But in all such cases as proceed from an over fullness, or from hard riding, which drives the blood faster into the outward parts than can be readily returned by the small capillary veins; or if these disorders proceed from the blood being too viscid, by which means it loiters in the small vessels of the eyes, blood-letting must then do great service, and is often practised among horses to very good purpose. For the same reason it may be useful in the farrin, the itch, and all diseases of the skin.

There must be constant care taken of the age, strength, and constitution of all horses. A young horse, though he be more subject to diseases, as has been already observed, will, however, much sooner recover the loss of blood than a horse that is full-aged; and a full-aged horse sooner than an old one, because all young animals are vigorous in their appetite and digestion; but yet a full-aged, or an old horse, if either be hardy and strong, may overcome all losses of this kind, better than

than some young horses who are of a washy and delicate make. We shall now proceed to purging.

We need not offer to explain what is meant by purging, since every one knows that it is the discharging of humours and excrements through the common passage of the belly. The way this operation is performed, is with such medicines as by their irritation stimulate the membranes of the guts, whereby their peristaltic motion is quickened, so as to shake off their contents. But if the dose or potion happens to be large, or if it be made of such things as abound much with those stimulating particles; or, to express it after the common way, if very strong physic be given, it not only carries off what is contained in the guts, but likewise causes such frequent and reiterated twitches, as derive a more than ordinary quantity of blood into those parts, whence is separated and discharged abundance of serum, which is thrown off by the common passages before mentioned. And hence it is evident, that physic may be so ordered as to carry off more or less of the substance of the blood, according as the dose is enlarged or diminished, or as it abounds more or less with those purging particles; and consequently that it may be rendered either profitable or hurtful, according as it is managed.

We shall not here detain the reader with the manner of preparing the body for this operation, neither shall we lay down rules for rendering this or that sort of humour fit for a discharge by medicines,

dicines, which have been ignorantly, but with much industry, devised ; that sort of practice being now justly exploded as uncertain and ridiculous, since it is very plain that all purging physic differs only in the degrees of strength, and works no otherwise on different humours, than as it is able to reach only those that are near, or such as are more remote from the guts, where its principal scene of action lies. What particular regard is to be had to those things, will be sufficiently shewn hereafter. We shall therefore only in this place lay down some general directions, which, we hope, will be of use to all who practise medicine among horses.

Purging may be necessary in most or all plethoric cases, especially after an evacuation has been made by blood-letting, and the body rendered somewhat cool and light ; for if a horse be purged when his body is very full, it may, unless the other secretions are also free, occasion, during the operation, a too great hurry in the blood's motion, bred from too great a quantity of blood ; or by deriving too much blood into the intestines, may occasion an inflammation of the guts. For the same reason, horses that are plethoric, or full of blood, ought only to have mild purges given them.

Because a horse can seldom or ever disgorge himself by vomit, gentle purging may be allowed in disorders of the stomach, before other things are administered.

Purging

Purging is the most necessary remedy for all foulness in the guts, for the expulsion of all viscid roapy matter, and in all cases where a horse is infested with worms.

It is a great relief in costiveness, especially after suitable clysters have been first administered. It is also useful in all scouring and looseness of the belly, when performed by such medicines as afterwards constrict the intestinal glands. But in this case many of the tribe of purging medicines may be very hurtful, and occasion either a too great relaxation of those glands, or an inflammation of the guts, by their too violent and harsh operation.

In all cases where there is a gross habit, with a tendency to swellings in the limbs, or any other part of the body, purging is necessary. Also in humid and watery diseases. In disorders of the liver, causing the jaundice, and in many of the diseases of the eyes it does manifest service, by the revulsion it makes from those parts, and in most ailments in the head, where there is no fever, but only a stagnation of the blood in some of the small capillary or hair-like arteries. For purging, in such cases, not only drains off part of the superabundant matter, but also, by putting the blood into a brisker motion, causes a separation of its grosser parts, so that it moves with more freedom and ease in all its canals, and is thereby brought more readily to the secretory offices.

But in this operation, as well as in bleeding, a particular regard ought to be paid to the strength

of every horse, because the irritation that physic makes in the stomach and guts, when it is powerful, occasions such disorderly agitations in the blood and spirits, as cause violent sickness, attended with cold damp sweats, and sometimes with convulsive motions. All this I have seen frequently happen to horses while under this operation, and therefore they ought not only at that time to be carefully looked after, but their physic should be qualified with such mixtures as will prevent it from adhering too closely to any part of the guts.

But what relates to this, and all other operations, will be performed in the sequel of this treatise, where all those general rules shall be justly and methodically applied.

S E C T. IV.

OF A COUGH AND HUSKINESS IN THE THROATS OF HORSES.

THESE disorders arise from a convulsive motion of the diaphragm, thorax, and abdomen, owing to an irritation of the larynx. The huskiness is an affection of the aspera arteria, caused from an infusion of thin acrid lymph, or an abrasion of its internal mucus. But young horses are thus affected, sometimes by worms; and coughs are very frequently a primary disease, which

which disorder the whole body by their violent obstinacy. The cause also of this disorder may be, from a flux of serous humours from the outward parts and the extremities of the body to the lungs, and is accompanied with feverish heats and shiverings in the evening, from taking cold. Bleeding in small quantities, and often, should not be neglected; and to promote an equal circulation of the blood, and send back the serous humours from the chest to the subcutaneous glands, hot pectoral infusions will be proper, prepared of mallows, leaves of hyssop, sage, fennel-seeds, anniseeds, and cinnamon. Two or three quarts of this liquor, given warm, in the course of the day, with the following remedies, will soon remove the worst of coughs in horses.

Take linseed oil and molasses, of each four ounces; salt of nitre half an ounce; turmeric and elecampane-root, in powder, of each a sufficient quantity to form a ball, to be given morning and evening.

Or,

Take balsam of sulphur anisated, one ounce; flowers of Benjamin, two drachms; gum arabic in powder, one ounce and an half; common tar, two table-spoonfuls; with a sufficient quantity of liquorice-powder form a ball, to be given night and morning.

Or,

Take flowers of sulphur, four ounces; elecampane-root in powder, and turmeric, of each

one ounce; Locatelli's balsam, two ounces; myrrh, one ounce; oil of anniseeds, half an ounce; molasses, a sufficient quantity to form two balls; to be given night and morning.

Or,

Take assa-fœtida and gum-ammoniacum, of each one ounce; squills in powder, three drachms; Socotrine aloes three drachms; oil of anniseeds, enough to make a ball for night and morning.

Or,

Take oak-bark in fine powder, half an ounce; liquorice-juice, three drachms; myrrh, in powder, one ounce; gum-arabic, two ounces; oil of anniseeds, one hundred and twenty drops; and with a sufficient quantity of molasses, form a ball to be given night and morning.

Or,

Take olibanum, half an ounce; Japan-earth, two drachms; Venice-treacle, and syrup of poppies, two ounces; balsam of sulphur anisated, three drachms; with a sufficient quantity of any syrup, form a ball to be given every morning and evening,

Or,

Take oil of sweet-almonds, four ounces; thebaic tincture, half an ounce; oil of anniseeds, one hundred and twenty drops; with a sufficient quantity of liquorice-powder, form into a mass for two balls, one for the evening, the other for the morning. But if the disease prove very obstinate, purges may be administered,

stered, for which see the Appendix. Besides which, warm mashes, night and morning, of bran and water, with the following cordial stomach ball, if thought more convenient than any of the former.

Take anniseeds, cumminseeds, elecampane and turmeric, colts-foot, grains of paradise, fennel-seeds, and anisated balsam of sulphur, of each two ounces; flour of brimstone, four ounces; fenugreek-seeds, an ounce and a half. Dissolve four ounces of liquorice-juice in a pint of water, and mix in the powders; to which add an ounce and a half of oil of anniseeds; oil of almonds and simple syrup, of each half a pound; and with as much wheat flour as is sufficient, make the whole into a mass, or stiff paste, which keep in a bladder for use. For a violent cough, or in order to strengthen or fatten your horse, give him an ounce and a half of this medicine every morning and evening, till he recovers; particularly, after hard exercise, he may have a ball as soon as he is well rubbed down, very dry, and his cloth girthed on him, with which, each time may be given a warm mash of bran and water, and in it, half an ounce of purified nitre may be mixed.

SECT.

S E C T. IV.

OF COLDS AND FEVERS.



IT would be the most unnecessary and laborious task imaginable, to describe the number of different fevers. We therefore upon a certainty can say, that fevers overtake the animal from severe colds, a sudden stoppage of perspiration, and often from excess of exercise. But the general cause is from the neglect of the servant in not rubbing him dry after sweating, letting him stand in some cold place, instead of putting him in a warm stable, and girthing on his cloth. Therefore, from such idleness or neglect a violent cold ensues, the cutaneous passages are obstructed, a stagnation of the perspirable matter takes place, the horse grows languid, and falls off his food, his ears grow cold, the body costive, and sometimes a suppression of urine takes place, and an increased circulation of the blood, attended with violent inflammation, which causes or occasions a spasmodic affection of the whole nervous system. The beast is then affected with difficult respiration, chilliness, shivering, or intense cold, less or more, longer or shorter, external or internal, according to the variety of causes.

When the increased accumulation of the vital heat overcomes the elasticity of the muscular fibre, and retains the heart in its diastole; or when the
fluids

fluids are destroyed by the force of the solids; hence arise inflammations, suppurations, gangrenes in the vital viscera, and aphthous ulcers in the primæ viæ, which, in fevers, is the common cause of death, both in man and horse.


The practice to remove these disorders, is to keep the animal moderately cool, give him plentifully of warm water and bran, as it is impossible he can drink too much. In each gallon of warm water, you may mix half an ounce of sweet spirit of nitre; and when nature verges towards a secretion, diaphoretics become necessary to help on coction and a crisis. If nature be very languid, cardiacs, aromatics, and volatiles, should be administered. When the fever is lowered, salts and acids may be allowed, and small portions of oats, but often repeated. If a horse has strength, bleed him first, then give him purified nitre, one ounce; sal ammoniac, half an ounce; camphor, three drachms; make them into a ball for one dose, with molasses and flour, and repeat it night and morning.

These balls will allay thirst, promote the secretions, and attenuate and thin the fizy blood. But to give them in such large quantities, and so often in the day, as directed by some authors, would naturally and certainly break the crisis of the blood into an undue proportion of serum, and, in time, terminate in a dropy.

In order to promote perspiration, make the following powders into a ball, and administer one
of

of them every four or six hours, keeping the horse well clothed, and giving him plentifully of warm water and bran.

Take tartar emetic, levigated, twenty grains; snake-root in powder, two drachms and a half; compound contrayerva-powder, half an ounce grains of Paradise in powder, ten drachms; with a sufficient quantity of molasses make a ball for one dose.

 The nitre ball is likewise to be continued night and morning, as before directed.

And every second day, twice or thrice only, give the following cooling purge, which will only keep the body gently soluble; sal polychrest, three ounces; diuretic salt, one ounce and a half; jalap in powder, four drachms; buckthorn-syrup, four ounces; powdered ginger one ounce; to be mixed in a pint of thin warm gruel.

If the horse has a cough, and it does not immediately give way to this treatment, bleed him often in small quantities, which will lower the inflammation of the lungs.

After the fever is entirely removed, and the creature appears to be relaxed, or the digestive faculties debilitated, administer every morning and evening, as under.

Take sound oak-bark, galangal-root, Winter's-bark, and snake-root, all in powder, of each an ounce; grains of Paradise, one ounce and a half, and with a sufficient quantity of molasses, make two balls. After giving this two or three days following,

following, then the above quantity, divided into two doses, will be sufficient for each day, till the horse recovers.

These methods, if properly contrived, will do in all fevers, as well as in every kind of cold whatever. We could furnish the reader with a number of sheets upon fevers, but it would amount to nothing more than what we have written here, which is within the bounds of reason, and warrantable practice.

S E C T. VI.

OF THE CEPHALALGIA, OR PAIN IN THE HEAD.

THE cause of pain in the head, is from acrid particles of blood and lymph, which vellitate or distend the membranes, or nervous fibrillæ; but very often from over exercise, plethora, costiveness, &c.

The signs of this disease are, a hanging down of the ears, dimness, or heaviness of the eyes, which are most commonly very watery. Sometimes a pain in the ball of the eye will cause the disorder, and often from a distraction of the fibres of some blood-vessels in the brain, or membranes thereof, occasioned by some of the smallest particles of the serum being struck into the pores, or interstices of the said vessels, by the frequent occurrences of the blood.

The dropping of his urine, swollen eyes, with a fever, together with pushing his head against the manger or stall, are true symptoms of the horse being in great pain in his head.

As we have already mentioned in this Section, the causes of the head-ach may be all such things as are able to distract the parts, nerves, and membranes, from one another; but there is nothing in the compass of nature, which cannot do that, with whatsoever properties or figures it is endued; for since somewhat may always be applied or added to another body, such a body may increase into a bulk, too big to flow through a canal of a given diameter, and which will therefore require more room. Wherefore, whilst the sides of the canal are thrust outward beyond what they are used to be, that is, the parts composing those sides, before contiguous, being loosened and moved away from one another; if that body strikes into those sides with a brisk impetus, and that impetus is constantly renewed, the solution will be considerable, or the rufus towards a solution violent, or there will arise pain. Wherefore the constituent parts of fluids being sufficiently augmented in dimension, and propelled with a continually-repeated impetus against any canal of the body, may occasion that considerable solution, in which consists the origin of pain. For it all comes to the same, whether some parts are added to a body, or the parts of that body are, by any cause whatever, separated to so great an interval towards the sides of a canal, as to constitute a dimension

menſion equal to that which aroſe from the addition of a new part ; for both ways the bulk may ſo increaſe, that the natural capacity of the canal is not big enough to contain it, without ſome violent dilatation ; and by means of a ſtrong and frequently-repeated contraction of the heart, a diſtraction of the fibres conſtituting their coats, and conſequently pain muſt follow.

After this diſcourſe, we are to lay down methods to cure the pain of the head, which is to bleed the animal very plentifully, if he has ſtrength to bear it ; for after this operation, the impetus and niſus of the parts of blood, will be much leſſened againſt that body which it ſtrikes, whether it be groſs or minute, or whether it forces againſt the ſides of the pores in their coats. After bleeding, two or three rowels will prove moſt ſalutary in this diſorder.

Two or three quarts of the ſudorific decoction, made very ſtrong of lignum-vitæ, may be given warm with a horn, with hot maſhes of bran and water, three times every day ; and at night, the laſt thing before the maſh, the following alterative ball muſt not be neglected till cured : Barbadoes aloes, and gum guaiacum in powder, of each one drachm and a half ; ſalt of wormwood, one ounce ; ſal polychreſt, half an ounce ; with wheat flour and molasses a ſufficient quantity, make a ball for one doſe. After this ball, once in the courſe of the day, mixed

in the guaiacum, or lignum-vitæ decoction, give as follow :

Take tincture of castor, two ounces; aromatic spirit, one ounce; Venice treacle, one ounce and a half; mix them in a pint of the warm decoction.

S E C T. VII.

OF THE APOPLEXY; COMMONLY CALLED THE STAGGERS.

THE word apoplexy, is from the Greek ἀποπλῆσσω, *percutio*, to strike; because a creature is often suddenly struck motionless. It is a sudden deprivation of all internal and external sensation, and of all motion, unless the heart and thorax. For the understanding of which, it is necessary to premise, first, that if by any means a nerve is tied and compressed, the part to which that nerve is directed, loses its sense and motion. Secondly, that if any nerve is cut, there distils out a liquor. Thirdly, that motion is performed by reason the nervous fluid is impelled, by the force of the arterial blood, through the nerves into the muscular fibres. And lastly, that sensation is from hence, viz. that objects compress or strike upon the extremities of the nerves by their motion, and drive back the nervous fluid towards the brain.

The

The staggers is a sudden abolition of the external and internal senses, and of all voluntary motion.

There are four kinds of this disorder; the most favourable of them are when the beast breathes during the paroxysm, very little different from what he did when well. The next is when the respiration is intermitting, anhelous, and inordinate. Another, when the animal cannot breathe without great pain and difficulty, and when respiration for some time totally ceases. The cause of which is the efflux of the nervous influence into the cellular coats of the organs of sense being impeded.

The ancient practitioners in medicine were well acquainted with this disease, from the derivation of its name *Apoplexia*, from *apopleffo*, to strike. It may sometimes be occasioned from a plethora, and too great an accumulation of blood in the ventricles of the brain; but more frequently it proceeds from a deficiency thereof, and a redundance of viscid serum. After bleeding, give as follow:

Take pill cochia, one ounce and a half; oil of amber, half an ounce; cinnabar of antimony, levigated, ten drachms; valerian-root, in powder, two ounces; galangal-root, an ounce and a quarter; long pepper, half an ounce; jalap, half an ounce; with a sufficient quantity of buckthorn syrup, make paste for two doses; half of it every evening, and the other half
every

every morning, for three days following, with warm mashes of bran and water. No cold water till your horse recovers.

S E C T. VIII.

OF A PALSY.

THIS disorder is a privation of motion, or sense of feeling, or both, proceeding from some cause below the cerebellum, in all or some of the parts receiving nerves from the medulla oblongata, below the cerebellum, joined with a coldness, softness, flaccidity, and, at last, wasting of those parts.

Hence it appears that the brain, or cerebellum, is not affected by a palsy; and therefore the internal senses, and the motion of the heart and thorax, or the pulse and respiration, are not necessarily interrupted or destroyed. But if the cerebrum, or cerebellum, were affected, the internal senses would, lightly at least, be disturbed; and it might be possible for a slight apoplexy to follow upon a palsy.

When this privation happens to the human species, and is in all the parts below the head, thorax and heart excepted, it is called a *paraplegia*; if on one side only, it is an *hemiplegia*; if only in some other parts, it is called a *particular paralysis*.

Thus

Thus we are certain that a palsy is very similar to an apoplexy, which not being sufficiently attended to by some authors, they have very erroneously distinguished hemiplegia and a paraplegia, from a palsy.

A palsy without motion, is caused from a too great humidity stretching the fibres in length, whether such humidity is internal, or communicated to the blood; or external, and collected upon any particular muscle. From colds, falls, bruises, external compression of tumours, &c. may arise a palsy. In beginning the cure, we recommend an opening clyster, before you administer purging remedies.

Take of hiera-picra, three ounces and a half; aloes, one ounce; oil of amber and rue, of each one ounce and a half; castor oil, four ounces. Boil down two handfuls of rosemary in two quarts of water to one quart, then mix the above ingredients, and inject them warm every evening; and every other morning give the following purging ball for twice or thrice.

Take of jalap in powder, and gum guaiacum, of each two ounces; oil of amber, one ounce; oil of rosemary, two ounces; aromatic spirit, one ounce and a half; syrup of buckthorn, and wheat flour, a sufficient quantity to form a mass; divide it into two balls, to be given in the evening immediately after the clyster
has

has operated. This practice every day for three or four times, more or less as you find the horse has strength to bear it, will prove extremely salutary; together with the following stimulating liniment:

Take oil of turpentine, and oil of vitriol, of each six ounces; mix them gradually together in a pint of train oil, with four ounces of unrectified oil of amber, for use. Particular care must be taken in mixing this embrocation, or it may take fire.

The parts affected, are to be exceedingly well rubbed with some of the above preparation, very often in the day, particularly the back, loins, joints, &c. The night you do not administer the purge nor clyster, you may give the following ball:

Take of the saponaceous pill, one ounce; assafoetida, one ounce and a half; oil of amber, rectified, half an ounce; and gum guaiacum, one ounce and a half; with any syrup make them into one ball. This method of practice will remove the spasms upon the muscles, and prevent a locked jaw.

S E C T. IX.

OF AN OPHTHALMY, OR AN INFLAMMATION
OF THE TUNICA ADNATA OF THE EYE.

THIS disorder is accompanied with heat, pain, redness, and a stagnation of blood in the capillary arteries.

It

It is to be well observed by every practitioner, that they are not to mistake the internal ophthalmy for the external; the external we have described.

The internal is an inflammation of the retina, which has not been described by many authors, nor have any of those who have handed down the rules of practice, delivered the signs by which this is to be known in the human species, and we are sorry to say it cannot be come at in horses, because the signs are, besides inflammations, &c. the afflicted imagines he sees moats floating before his sight, with a kind of obscure dust, or uncertain appearances of objects flying about him; but these cannot be discovered in any dumb creature. However, immediately that you perceive the animal's eyes affected, bleed him two or three times following, according to his strength, which may be done with the greatest safety.

After bleeding plentifully, it will be necessary to have recourse to purging, whether the disease be external or internal.

To conquer this disorder, we must make use of mercurial purges, and that several times, only taking care not to divest the horse of too much of his strength, letting him recover one dose of physic before you give him another.

Take jalap in powder, one ounce and a half; aloes, half a quarter of an ounce; mercurius dulcis, two drachms; oil of anniseeds, half an ounce; mix

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them together, and with a sufficient quantity of wheat flour and buckthorn syrup, make a ball, to be given every fourth day, for three or four times. If the horse is weak, give it only once a week.

Take care that he has warm mashes during the operation of the physic; and no cold water on those days, on any account whatever. A few drops of thebaic tincture dropped or syringed into each eye, night and morning, is preferable to all other external applications whatever. There are many other disorders of the eyes to which horses are liable, and on which authors have written long details, as upon the epiphora, the pin and web, each of which is to be treated as this section.

OF THE GUTTA SERENA.

THIS is a blindness which gives no signs of disorder in the exterior parts of the eye, which takes place from an obstruction, a distempered blood, &c. To be treated nearly the same as the former, excepting the mercurials should be given every other evening alone, the quantity of half an ounce for a week or more, then purge him, as prescribed in the last chapter. But we must beg leave to add, that a cure is seldom obtained in this disorder, either in man or horse.

OF

OF A SUFFUSION, OR CATARACT.

THIS disorder is caused from a thick concretion of carpuscles, mixing with the aqueous humour of the eye, by degrees taking away the sight.

There is one inseparable sign of a cataract being discernable, which is a disorder of the humours of the eye, whereby the pupilla that ought to appear transparent and black, looks opaque, and of some other colour, as inclining to white, grey, brown, blue, &c. by which vision is variously impeded, or totally destroyed. The only certain cure for cataracts, is to perform the operation called couching. But this cannot be performed by any but an expert surgeon, who understands the anatomical part of the eye, and who has been well used to the practice. Therefore an explanation of the operation here, would be useless.

S E C T. X.

OF A PERIPNEUMONY; OR BEGINNING CONSUMPTION.

THIS disease among horses, very often takes its rise from their drinking cold water when over hot; or the suppression of some evacuation from their heels, drying up the grease too quickly,

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or

or the like. Sometimes it arises from a peccant acid in the blood, from whence the blood becomes coagulated, and the membranes are vellicated to throw off an offending acid.

The causes of these inflammations, are to be expected from a very cold air, cold water, eruptions driven to the stomach, the sudden stopping of a severe purging, a southern atmosphere, and rainy seasons; for then the air is lighter, and presses the blood less forcibly out of the capillary arteries of the lungs towards the left ventricle of the heart; with a less impetus also it rushes into the jaws; and the small arteries there dispersed, being too much dilated by means of the small resistance which the weak pressure of the air occasions, these are the reasons why the blood stagnates, and moves more heavily in its circuit.

Hence arises a violent inflammation of the lungs. The parts affected are the pulmonic or bronchial arteries, or the lateral lymphatics; the blood being either obstructed in the former, or propelled into the latter. These inflammations of the lungs too often terminate in a dangerous consumption, which, if not speedily remedied, the death of the horse must inevitably be the consequence. In these cases you must not be too busy with the lancet; we advise no blood to be drawn on any account. The method of practice here laid down, we flatter ourselves, will be found more useful than any yet offered by other authors, strictly adhered to.

Take

Take pectoral oxymel, two pounds ; purified nitre, an ounce ; barley-water, one gallon ; mix them well together warm, and give the horse a pint of it three or four times every day.

Or,

☞ Take elecampane-root and Florentine orris, of each three ounces, in gross powder ; boil them in twelve pints of water to eight pints ; then strain it, and add gum ammoniac, four ounces, dissolved in a pint and a quarter of good vinegar ; honey, two pounds ; Russia castor, gentian-root, and favin in powder, of each one drachm and a half, boil them up, and skim off the froth and strain it. Every morning, noon, and night, give the horse a pint of it either blood-warm or cold, as it is immaterial whether warm or not.

This will incide tough phlegm, open the obstruction of the bronchia of the lungs, and may be much depended on in shortness of breath and wheezings ; and if properly applied, may put a stop to the disease commonly called *broken-wind* in horses, if taken in time.

S E C T. XI.

OF ASTHMAS, OR BROKEN-WIND AND CONSUMPTIONS.

THE disorder commonly called *broken-wind* in horses, is an asthma ; a difficulty of breathing by some fault in the lungs, and is a very difficult

difficult and laborious respiration, it may be owing to the compression, coarctation, or obstruction, of the pulmonary vessels.

But if the horse has a continual difficulty of breathing, it is from a compression of the veins, bronchial vessels, pulmonary visculæ or nerves; it sometimes is occasioned from a collection of water in the animal's stomach, or from an abscess, tubercles, polypus in the blood-vessels, adhesion of the lungs to the pleura, or tumours and inflammations in the stomach, spasmodic constriction, coarctation, or irritation of the organs of respiration. If this disorder is occasioned from the horse being plethoric, bleeding and purging with gentle exercise will remove it, if taken in hand in the early part of the disease, but if from other causes, it must be treated as hereafter directed; and if it does not give way in a short time to the prescriptions here laid down, it generally ends in consumption or dropsy. But before the animal falls into a confirmed state of this disease, you will observe he will for some time be violently afflicted with a very obstinate, dry, husky cough, without the least signs of sickness or loss of appetite, but much disposed to foul feeding, and drinking more water than ordinary. After bleeding the horse give him the following purge:

Take jalap and Barbadoes aloes, in fine powder,
of each half an ounce; mercurius dulcis, three
drachms; saffron, two drachms; oil of anniseeds,
half

half an ounce; and with a little wheat flour and a sufficient quantity of buckthorn syrup, form a ball, to be given immediately after bleeding, and be particular in working off this purge with warm bran and water; no cold water to be given the day the animal takes the physic. This purge may be administered two or three times in the course of a month. The days he does not take the purging medicine give him as follow :

Take assa-fœtida and gum-ammoniac, of each three ounces; squills, six ounces; aloes, two ounces; cinnabar of antimony, half a pound; pill styrace, two ounces; gum-arabic in powder, four ounces; with a sufficient quantity of honey make it into a paste, and give the horse the size of a pullet's egg every evening and morning.


Or,

Take flowers of sulphur, one pound; Locatelli's balsam, four ounces; flowers of coltsfoot, horehound, and saffrafras in powder, of each three ounces; bay-berries, two ounces and a half; oil of anniseeds, one ounce and a half; with a sufficient quantity of molasses or honey make it into a mass, and give the horse two ounces of it morning, noon, and night.

Or,

Take eight heads of garlic, cut up small and stamped in a mortar; balsam of sulphur animated,

sated, an ounce; grains of Paradise, cummin and fenugreek-seeds, of each four ounces; with a sufficient quantity of liquorice-powder and honey, make it into a stiff paste. Two ounces is a dose morning and evening.

But, after all, if a consumption takes place, or indeed if it does not, and the disorder proves stubborn to be removed, you may administer the drink made of Russia castor, gentian root, &c. as ordered in the section for the cure of the Peripneumony, marked thus , page 213.

Every time you feed the horse, you may add to his corn an equal quantity of linseed, fenugreek-seeds, annis, fennel, and carraways, about half an ounce of each mixed together. Notwithstanding these helps, if the horse grows poor and emaciated, his eyes appear hollow, his spirits low, and given to sweat much on little exercise, a continual hollow cough, rattles in the throat, and looks ghastly, you had need give up every hope of saving him to do you any future service, because the expence will be much more than the profit you may ever expect, when the disease is out of the reach of medicine.

In the beginning of this disorder every remedy prescribed in colds is exceedingly useful, and sometimes scalded barley with his bran instead of oats; and the less hay he is allowed in these disorders of the lungs the better.

SECT.

S E C T. XII.

OF THE GLANDERS, AND CONSUMPTIONS OF THE LUNGS.

AS the glanders appear to be an affection of the glands of the throat, whether from catching cold, unwholesome food (which renders the blood poor and viscid) or from the bad constitution of the air producing such disorders; from either of these causes, the horse must be managed in much the same way: but the business is to take the distemper in its first stage, and nip it in the bud: for, after the matter or running has acquired a malignant and corrosive quality, whereby the soft spongy bones in the nose are become carious or rotten (which may be known from the ill colour, smell, &c.) when this is the case, it is past remedy, or at least the remedy is worse than the disease.

In the first place, the horse is to be kept very warm, and fed with clean good food; as sweet, well-shaked hay, oats ground, and some of the rougher feeds taken out, mashes, and the like, with a continued use of warm water and oatmeal, for some time; and of the latter, oatmeal, be not too sparing; for the glanders are occasioned oftentimes through poverty and lowness of flesh. Therefore, as diseases are cured by their contraries, what affords good wholesome nourishment, and adds spirits to the blood, must undoubtedly be of service in this case.

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F f

Secondly,

Secondly, bleeding is proper in the beginning of the distemper, that is, before the humours have too far affected the glands or kernels about the upper part of the windpipe; though indeed many horses are affected with swellings of the glands of the throat while they are at grass, especially in winter, which continue long upon them before we see them, or any proper care is taken, insomuch that they indurate or harden, and would turn out like a boiled potatoe; and when thus hardened, they are unfit to perform secretion. But here it may not be amiss to shew the reader the form or structure of a gland, and then he may be the better qualified to judge of glandulous disorders, which are really very numerous; and it is great pity more pains are not taken to set their doctrine in a true light; though of late years we are better acquainted with their structure and mechanism.

The ancients believed the glands were as so many cisterns, which contained certain liquors, by which the blood being fermented, threw off the humours refined by the excretory or discharging ducts or pipes; but as these ferments must necessarily mix with the blood, so they must be exhausted, and carried off by the blood into the veins, and because all the liquors in the body are separated from the blood, there must be another ferment to separate more: but this second ferment is as liable to the same fate as the first;
and

and therefore there must be an infinite series of ferments in the body; which is absurd to imagine.

If it should be objected that the ferments are not carried off with the blood, they must be stopped by the structure of the glands; but then there will be a secretion without a ferment, which is now the common opinion.

Some think the glands are tubes, whose orifices, differing in figure, admit only bodies of similar figures to pass through them; but this (though a plausible conjecture) is demonstrably false; for besides that, liquors are susceptible of all figures, and that bodies of any figure, and a lesser diameter than that of the gland, will pass through; and that even a body of a similar figure, and equal diameter with that of the orifice of the glands, may be presented innumerable ways, and not be able to pass through, whilst there is only one way it can pass.

All the vessels in an animal body are conical or cylindrical, and consequently there is no difference in the figure of their orifices; for the pressure of a fluid being always perpendicular upon the sides of the vessel that contains it, and equal at equal heights of the fluid, if the sides are soft and yielding, they must be equally distended or stretched out, that is to say, a section perpendicular to the axis of the vessel must be a circle, and consequently the vessel must be either cylindrical or conical; and this is agreeable to the ac-

counts of the nicest anatomists, who tell us that a gland is nothing else but a convolution (or winding together in a bundle) of small arteries, whose last branches are cylindrical, or, which is the same thing, part of an infinite cone. A gland therefore being long, nothing else but the branch of an artery, whose farthest extremity becomes the excretory duct or discharging pipe of the gland, it is next to be known how such a structure can separate from the blood only some of its parts, and how different glands may separate different parts of the blood.

If such a fluid then is to be drawn off, as consists of the smallest particles of the blood, let that orifice of the glands, which is inserted into the artery of which it is a branch, be so small as to admit only the smallest particles of the blood, then these, and these only, will enter this gland, and the fluid, which passes out of this other extremity of the tube, or the excretory duct, must be such as is required.

If the particles of the blood, which are of the next size or magnitude, are required to be separated, let the orifice of the glands be so large as to receive those second particles, but small enough to exclude all larger particles; then these second particles, together with the first or smallest, will enter the gland; but because the liquor to be discerned, or separated, is to consist only of the second sort of particles, that is, the second sort of particles only are to flow out at the extremity of the tube or excretory duct; therefore we are to suppose

pose that this gland (which is only the branch of an artery, and differs in nothing from a common artery, but in the narrowness of its channel) has branches which are wide enough to receive the smallest particles only, and carry them off into the veins; so that as both sorts of particles will pass off through its branches, and a fluid, consisting chiefly of the second sort of particles, will arrive at the excretory duct or extremity of the convoluted tube.

Thus the number of branches may be so great, as to draw off most of the smallest particles before the second sort of particles arrive at the excretory duct; so that the liquor to be secreted or separated may consist of both these sorts of particles mixed together in any proportion, according to the number of branches.

If a fluid consisting of a third sort of particles larger than any of the former, is to be secreted, the orifice of the gland must be just large enough to admit such particles, and none bigger; and the branches of the gland must be small enough to exclude the largest particles, and big enough to receive the lesser; and according as the number of branches is either greater or smaller, the fluid which runs out of the excretory ducts will consist either of the largest particles, or of all together mixed in any proportion.

And thus we may understand how a liquor thicker than the blood itself may be strained off
from

from the blood, if the orifice of the gland be so big as to admit particles of any sizes, and the branches so numerous as to draw off the thinner parts, before the thicker arrive at the excretory duct.

We could illustrate this theory by diagrams, and shew more plainly how, and in what manner, the several humours of the body may be separated from the blood, which must be either composed of so many humours as are separated from it, or otherwise it must contain a few principles, which mixed altogether form the blood, and thus, variously combined, form the different humours that are drained from it; as a few rays of light, of different refrangibilities, mixed altogether, produce a white colour, but variously combined exhibit all imaginable variety of colours. And it is not at all probable, that the blood, in which we discern but two distinct parts, should be composed of near thirty simple humours, for so many do the glands separate from it; nor is it agreeable to that simplicity which nature constantly affects in all her operations.

Since therefore the several humours are formed by the various combinations of a few particles which compose the blood, and that each humour is discerned and separated by glands placed mostly in some one part of the body, as the gall which is separated in the liver, and the urine in the kidneys, the particles of blood must fall into such combinations as are fit to form gall in the liver, and urine in the kidneys, and so of others; and if
this

this was not the case, the glands could never separate such humours of the blood. And as all the humours are composed of a few different particles, the greater will be the number of particles combined to form bile, and a greater quantity of bile will be separated, the fewer there are of all other combinations at the liver. Such combinations therefore as are fit to form the humours proper to pass through the glands, where these combinations are formed, being there only requisite, will be there most numerous; and therefore, wherever the particles of blood are most dissolved, there will be placed such glands as separate humours, which consist of the most simple combinations, or of particles which do the most easily combine; and at the greatest distances from these will be situated the glands which secrete or separate humours, consisting of the most compound combinations, or of particles which do the most slowly unite. And between these will be all the other glands, which, according to either extreme, will separate humours more or less combined, or compounded of particles which do more quickly or slowly combine together.

By the thinness of the liquor in the pericardium, or bag surrounding and inclosing the heart, and that which passes through the kidneys, the particles of blood seem most dissolved at and about the heart. For here we not only find the effect
of

of such dissolution in the secretions, but likewise we are acquainted with the cause of it, viz. the force of the air in respiration breaking the globules of the blood; which force is demonstrable to exceed the pressure of a hundred pounds weight upon the surface of the lungs in a human body, and much more in a horse, whose lungs are far larger than ours. Nor is it evident only from the causes and effects, that the blood is here most dissolved, but likewise from the very methods which nature takes to prevent the effects of this dissolution in some particular places at a little distance from the heart; for, the bile or gall, and seed of animals, being thick humours, composed of particles which combine but slowly together, and it being requisite they should be separated where the liver and testicles are placed, nature has made use of particular contrivances to give the particles, which were to form these humours, more time to combine than they would have had otherwise, being so near to the heart.

For the formation of the gall, she has contrived the vena portæ, and the spleen. Through the first the blood moves near two hundred times slower (and through the last altogether as much) than otherwise it would have done; and that the particles which form the seed might have time to combine, the orifices of the spermatic arteries are contracted, and they likewise arise from the vena cava a little below the emulgents, at a great distance

tance from the testicles, contrary to the common course of nature ; by which means the blood is one hundred and fifty times slower or longer in going to the testicles or stones, than otherwise it would have been.

At the greatest distance from the heart, the viscus liquor of the joints is secreted, as also some other liquors, which do not require any combinations, as the lymph or watery humour, which may be separated any where. And all these different combinations, which form so many distinct fluids, arise from an attractive power in the parts of matter, which, though it be equally diffused through the whole mass, yet according to the different densities of particles, and the figures of their parts, some sorts of particles will be soon united, while others require a longer time to be joined together ; some will cohere or stick together more firmly than others, and particles of one kind will have a greater tendency to unite with those of another sort, in a certain portion of their surface, than in any other. We now proceed to give some account of the disease.

Good, clean, and easy-digestible provender, warm clothing, with bleeding, &c. are proper in the first stage of the glanders.

Secondly, a continued use of the following mixture every morning, for at least a month, will perform the cure, if any thing can touch the root

of the distempers when only from a cold, and before the bones of the head are corroded.

Take of tar and balsam capiva, of each one pound; incorporate them well with the yolks of twenty eggs; molasses or honey, two pounds; mix them in three quarts of good strong beer and one quart of brandy, and give the horse half a pint of it twice every day.

Now to the improved plan of this disease; almost every author who has written upon the disorder positively affirms, that there are seven kinds of it, in which one and all of them are grossly mistaken; though for the satisfaction of the reader, together with a desire to put the practitioner entirely out of error, we here lay down those diseases which they call glanders, with their different causes, and methods to treat them, at the same time proving that a glandered horse never yet had his lungs the least affected, but that the disease lies entirely in the head alone.

The first is from ulcers of the lungs, the purulent matter rises up the trachea, and discharges itself through the nostrils, sometimes in lumps, and at other times a white thin liquor.

The second kind of supposed glanders is also a defluxion of the lungs, which too often arises from the drying up of wounds or ulcers, which have been brought on the animal from hard labour.

The

The third is that malignant matter discharged from the disorder called the *strangles*, that immediately falls upon the lungs, and runs off by the nostrils. The cause is from mal-practice.

The fourth is when the acrimony of any disease falls upon the lungs, such as the farcy, and the like.

The fifth is from taking a severe cold, after hard exercise.

The sixth is the acrimonious matter in the strangles, returning into the blood for want of assistance in the cure, which falls on the lungs. These are called the glanders, and are the opinions of most authors, which, from the following discourse, you will soon discover were utterly ignorant of the disease, for there are none of the above kinds of glanders (meaning pulmonary diseases) but what will immediately give way to bleeding, purging, and other remedies, as before described in section for colds, or peripneumony.

But the true cause of this tremendous disease is from an inflammation of the glands, and membrane that lines the nostrils and the cavities thereof, and when not speedily removed, forms matter which erode and ulcerate the bones of the head. This most likely may arise from a fever being translated on these parts, and is in its nature local; and that the true seat of it certainly is in the pituitary membrane, which lines the partition along the inside of the nose, the maxillary sinuses, or cavities above the orbits of the eyes.

And

And in a true glandered case, you may depend upon it that the whole viscera, as the lungs, liver, &c. are as sound and perfect as if nothing ailed the horse; consequently the present mode of attempting to cure the glanders is unwarrantable, erroneous, and invalid. For instance, upon the numerous dissections of the heads and stomachs of glandered horses, we have found the lungs entirely sound, but the cavities of the heads were always filled with a viscous, slimy matter; the membrane which lines the nostrils and their cavities was inflamed, thickened, and corroded, full of fordid stinking ulcers, which had eat into the bones of the skull; this is the last stage of the disease, and when thus affected no cure can ever be expected.

But in its first state, fumigations up the nostrils of sulphur on hot irons, or the following powder may put a stop to the disease:

Take mastic, frankincense, and myrrh, of each an ounce, in powder; to which add factitious cinabar, two ounces; a little of this should be placed upon a hot heater, and a blanket thrown over the horse's head, and let him receive the fume up his nose, stirring the powder about with a tobacco-pipe to make it burn. This may be done twice a day; keep him warm, and give him warm mashes.

If

If this method does not answer, and you are certain the horse has the true glanders, the trepan must be applied, which the horse will suffer very little inconvenience from, if done by an expert hand.

Before you make use of the instrument for trepanning, called the *trephine*, you are to take off the skin and membrane that covers the skull, that the instrument may work itself easily into the bone. It should be fixed about half an inch below the eye, a little on one side the centre of the upper part of the nose, upon the frontal sinus; because if it is applied higher, it might run upon the brain, and the operator not being an expert surgeon, it would endanger the horse's life. About three inches below this perforation, another may also be made as a drain for the matter that lurks above it; indeed if there were three or four, two on each side, they could do no harm, but much good might derive from such experiments if attended to by men of ingenuity. It will be necessary to remind the operator that the trepan should be directed toward the interior part of the nose, that the instrument might work and be introduced above the roots of the teeth.

If in the maxillary sinus, instead of one, there happen to be two bony partitions, it will be necessary to work the instrument through them both, though it very seldom happens that there are two, though in some horses there are two, in others only one.

Upon

Upon the part a little below the eye, where the instrument is here ordered to be introduced to perforate the head, is meant to be upon the maxillary sinus, which is the only proper place for the operation to be performed.

After the trepan has been applied, and by probing the part of the skull it is found to be corroded, and too far gone to expect success, the better way, to prevent unnecessary trouble, would be to shoot the animal. But if the operation is performed in time, we make no doubt but a cure may absolutely be obtained, if conducted as here directed :

Take mercurius dulcis, two ounces ; gum-arabic, in powder, one ounce and a half ; one ounce of the strong decoction of oak bark, made with lime-water ; and an ounce of bole-armenic, in powder ; mix and shake them well together for an injection.

Or,

Take corrosive sublimate levigated, one drachm ; lime-water, two quarts ; mix for an injection.

Or,

Take white and blue vitriol and alum, of each two ounces, calcine them in a crucible, and pulverise ; then add camphor and bole-armenic, of each one ounce ; rub them well together, and put them into two quarts of vinegar and water, made hot, equal quantities, mixed in a
large

large bottle ; keep it close corked, till cold, and then it is fit for an injection.

Either of the above injections (cold) may be injected with a pint syringe into the upper and lower cavity, the better part of a pint several times in the course of the day ; after each time of syringing you may place a cork into each hole where the trepan was introduced, and take them out occasionally.

And in order to purify the contaminated blood and juices, and to break down the moliculæ, we advise the following mercurial preparation to be well rubbed into the insides of the horse's mouth, upon the salival glands, that the absorbent vessels may take it immediately up into the circulation :

Take mercurius dulcis and corrosive sublimate mercury, finely levigated, of each three drachms ; compound tasselaceous powders, an ounce ; rub them all well together in a glass mortar, and then divide them in parcels of fifty papers ; and rub one of them into one or other side of the salival glands, with your finger, for about five minutes every morning and every evening ; if the horse appears to be uneasy while chewing his provender, so as to portend a sore mouth, in that case, stop a day or two till he recovers ; then apply them again twice every day. There is no other method of introducing mercury into the circulation to act, quick enough upon the disease in question.

While

While the animal is under the mercurial course, by absorption, it will be highly necessary to give him the following balls :

Take gum-guaiacum in powder, half a pound ; cinnabar of antimony, six ounces ; saffraⁿas, in powder, four ounces ; mix them together into a paste with a little wheat-flour and a sufficient quantity of molasses ; then divide them into balls of an ounce and a half each, one of which to be given to the horse every night and every morning. Warm mashes of bran and water, with a little good ground malt in them, should not be neglected, and gentle exercise daily. Keep the afflicted horse by himself, otherwise the disorder may be taken by those which are sound, as the disease is sometimes infectious.

S E C T. XIII.

OF A QUINSY, COMMONLY CALLED THE STRANGLES.

IF the practitioner rightly manages this disorder, there is not the least danger but that the horse will soon recover.

The signs of this disease are, a swelling under the throat between the two jaw-bones, and the muscles of the tongue are very much affected ;
but

but in the human species there is much more danger of a cure than in quadrupeds.

In this disorder an inflammatory fever ensues, which is caused from a defluxion upon the thorax, fauces, and the parts adjacent.

There are three kinds of it which give way to the names of *strangles*, *bastard-strangles*, and *vives*.

When the internal muscles of the larynx are affected, without the appearance of a tumour, then it is called *cynanche*.

When the external muscles of the larynx are affected, without a tumour, it is then called *paracynanche*.

When an internal tumour is impeding respiration, it is called *synanche*.

And when the external muscles of the fauces are inflamed, accompanied with a tumour, it is then called *parafynanche*.

Whatever impedes or stagnates the fluids, immediately compresses the muscles, which brings on inflammation, which generally arises from an obstructed perspiration after taking a violent cold; this is the cause of the disease.

If no swelling appears, the disease in that case may prove mortal; but if a large tumour soon appears, the disease will be easily conquered, and a lasting cure may be expected; but to begin the cure it will be proper to make a cataplasm or

pultice, spread it upon some coarse cloth, and sew it tight about the swelling with a packing-needle and twine.

Take leaves of mallows, and of marsh-mallows, of each six or eight handfuls; two pounds of white lily roots, linseed, and fenugreek, in powder, of each one pound, and half a quartern of of bran; boil them all together in a sufficient quantity of water till they are soft, then beat them up together and boil them again to a thick pultice; apply this warm night and morning, after stirring a pound of hogs-lard into it. When the matter comes forward, the tumour is to be opened and the matter squeezed out, but the same kind of pultice to be constantly and regularly applied warm, and in a few days the whole will be run off.

Bleeding and purging must be omitted till the matter is all entirely drawn away by the above cataplasm; after which, give him the following cathartic once, twice, or three times:

Take jalap and aloes, in powder, of each six drachms; sal polychrest, two ounces; sal diureticus, half an ounce; buckthorn syrup, two ounces and a half; mix them together into a ball for one dose. It may be repeated every fourth day, for three times, if the horse is not too weak to bear it.

Warm mashes from the time the animal is taken ill, till the humour be dispersed, should not
be

be neglected; and warm water to be given to him the day he takes the physic.

S E C T. XIV.

OF THE ANGINA, ERRONEOUSLY CALLED ANTICOR.

THIS disorder is an inflammation in the gullet, or throat, which occasions a difficulty of deglutition and respiration.

It proceeds from the same causes which bring infinite diseases on horses, such as hard riding, exposing a horse to the cold, and giving him cold water to drink when he is hot, foul feeding, and whatever else may cause a sudden stagnation of the fluids. The signs are, first, all those that accompany a fever; for an anticor, while it is internal, never wants a fever to attend it; but when it shews itself externally, the fever begins to abate; unless it continues to be both external and internal.

So long as the inflammation continues in the gullet, the horse forsakes his food, and though he has frequent inclinations to drink, and his water be made moderately warm, the first gulp deters him from meddling with it again, until he has forgot the pain and agony it put him into. And

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the pain of the gullet is yet more manifest from this (and we believe every practitioner must have made the same observation) that whenever a drench is given him, he staggers, and seems as if he would fall down, and makes several short interrupted groans, or rather gruntings, and sometimes will break out into a cold damp sweat about his ears.

The cure must be begun by bleeding, and that need not be very sparing, for this disease seldom happens to horses that are poor and low; and here we also approve of breathing one or other of the veins on the hinder part, to cause revulsion; the thigh vein as proper as any; in this case, after bleeding, the following clyster may be given;

Take two handfuls of barley, two ounces of sal polychrest reduced to a fine powder, boil them in two quarts of water for the space of an hour, add to the decoction two ounces of prepared sal ammoniac; a quarter of a pound of fresh butter, and one ounce and half of oil of rue. Let this be given blood warm, and repeated twice a day or oftener.

If he takes no food, nothing must be given him but moistened hay and scalded bran, and what else must be chiefly such things as are proper to keep down heat and inflammation, and abate the feverish symptoms; for which purpose, we recommended after bleeding, those remedies
that

that are proper to promote sweat. Therefore, let the following drench be prepared for him :

Take treacle water and carduus water, of each one pint ; dissolve in these two ounces of old Venice treacle ; and after this has been administered, clothe him well, and give him a little warm water to drink ; or instead of the treacle and carduus waters, a pint of stale beer, mixed with small beer, may be used ; nothing is so effectual to remove inflammations, especially after bleeding, as sweating ; and therefore, if you find it difficult to promote sweat, you may give him the following ball :

Take of Venice treacle, two ounces ; volatile salt of hartshorn, thirty grains ; saponaceous pill, two drachms ; camphor in powder, thirty grains ; powder of liquorice or saffrafras, each one ounce, and simple syrup sufficient to make it into a paste ; let this be given after the operation of the clyster is over. And if the symptoms begin to abate, you may venture to give your horse a gentle purge, for which purpose, the cooling purging balls in the Appendix will answer every end.

Or,

Take scammony, prepared with the fumes of brimstone, two ounces ; diaphoretic antimony, one ounce, and the same quantity of the crystals or cream of tartar, and sal polychrestum ; make them into a fine powder.

The

The dose is two ounces, made up into a ball with butter and flour, to be given with the usual precautions.

This medicine not only purges the belly moderately, but also keeps the pores open, and carries off a great deal by sweat and insensible transpiration.

If the swelling appears outwards, and at the same time the other symptoms abate, you may then leave off purging; for what is intended by that evacuation, is chiefly to disperse the inward disorder; and then you are only to apply ripening cataplasms and pultices, allowing him at the same time sal prunella, salt-petre, or the the sal polychrestum dissolved in water.

The cataplasm for this purpose may be made of the following ingredients:

Take linseed and fenugreek seeds, of each two ounces; camomile, melilot, or their flowers, of each four handfuls; boil them over the fire till most of the moisture be evaporated, then pass them through a sieve, and add a quantity of cow-dung equal to the other ingredients, with a sufficient quantity of ox or sheep-suet to keep it moist. Let this be applied twice a day pretty warm.

Or,

Instead of this compounded pultice, cow-dung alone, applied warm on the part, with a sufficient

ficient quantity of hogs-lard, or ointment of marsh-mallows, may be sufficient to bring the swelling to maturation.

When it grows soft, and the matter seems ready for a discharge, it may be opened in the dependent lowermost part, by the application of a hot iron, or any sharp instrument; keeping a dossil in the mouth of the wound until the running abates, and likewise applying compresses and convenient bandages to keep the elevated skin close to the subjacent flesh, that it may be the sooner united; but if the cavity of the impostumation be large, it will not be amiss to lay it open with a hot knife, an inch or more, or if you would chuse to avoid a scar, use a cold sharp instrument.

The cure may be finished with applying only the unguentum basilicon, or a digestive made with turpentine, the yelks of eggs, or honey, with a moderate mixture of brandy or spirit of wine; and if any foulness appears, or if it heal too fast, or spongy soft flesh arise, pledgets dipped in copperas water, or a solution of blue vitriol, may be applied, which will keep it smooth and even.

But if the swelling increase very fast, which oftentimes happens, and that there is no tendency to digestion, but that it arises up towards the neck, affecting all the muscles in those parts, the horse will then be in danger of suffocation; and unless speedy relief be given, he must soon be strangled.

Therefore, besides repeated bleedings, if he is not too much wore out, it will be convenient to
take

take a hot searing iron, and apply it to five or six places on the lower part of the swelling, cauterising those parts, that they may be speedily brought to matter, which may also be dressed with tow or dipped in tar and turpentine, mixed before the fire, and applied warm; and by giving pain in those dependant and inferior parts, you cause the humours to flow downwards from the swelling; and by making vents that are sufficient to discharge them, you anticipate the pain, and take off from its excessive violence, which is also an extreme to be avoided, neither need you be afraid of the swelling that may casually happen in the fore legs, and perhaps even in his limbs, by canterising, for that cannot be of such ill consequence as when it is upon the neck and throat, neither will it be of any continuance if due care be taken of the issue.

The *Sieur de Solleyfell* recommends the making of small incisions with a fleam or lancet, in eight or ten places on the swelling, and to thrust into the holes between the skin and the flesh, pieces of the root of black hellebore, of the bigness of the tag of a point; and if the tumour be very large, he recommends the use of white hellebore, at the same time chafing the part with the ointment of marsh-mallows. The roots, by their hot burning quality, draw down and increase the swelling; and the ointments are to ripen the inclosed matter, and fit it for a discharge.

The same author also recommends the use of *betoires* or *ruptoris*, for drawing an immediate
flux

flux of moisture from the diseased part. These are ointments of the same nature with those which are made to draw blisters on the human body, and are composed of the like materials; and because they may be used with much safety, we shall insert two or three that are easily made, and will be found of no less efficacy than those which are more compounded.

Take of basilicon four ounces; black pepper and ginger, of each half an ounce; Spanish flies, two drachms. Let the flies, pepper, and ginger, be made into a fine powder, and incorporated with the basilicon.

The following is yet more powerful:

Take a quarter of a pound of basilicon; one ounce of red precipitate, in powder; half an ounce of euphorbium, and two drachms of the flies.

Or, the following, which is more efficacious than either of the former:

Take oil of bays, four ounces; euphorbium, in powder, two ounces; cantharides, or Spanish flies, half an ounce. These may yet be made stronger, or weaker, according to the use they are put to. The way they are applied, is by spreading a little at a time upon the part affected, holding a hot bar of iron to make them sink in; and this operation may be repeated as often as the case requires; but especially until

they have drawn out a plentiful deal of reddish water. They must be sparingly used on some parts, as will be particularized upon other occasional remarks on blisters.

S E C T. XV.

OF THE DISEASES OF THE STOMACH; AND OF A
DEPRAVED APPETITE.

AS the food of horses consists of the most simple productions of the earth, they cannot be liable to so many diseases in their stomachs as the human species, and therefore when we observe a horse lose his appetite, we may very readily suspect that disorder to be a symptom of some other disease, or to be the effects of some sudden accident or mismanagement; for it is very certain, whatever causes the blood to flow, in any overgreat quantity, into the stomach, must be the occasion of a plenitude and fulness of the vessels, which, according to its degree, will injure the digestive faculties; and if it amounts to an inflammation, or if those vessels be very much distended, it must needs cause, not only a want of appetite, but a loathing also.

And thus we observe, in all fevers and violent colds, a horse forsaking his food; and sometimes we may take notice in him the same dislike

like to eating after immoderate exercise, or after drinking cold water when he has been heated, or after a long and tedious day's riding in hot weather; and, in fine, after all those errors that may be the cause of fevers and most other sicknesses; and because such disorders very often go off without any other visible symptom than the loss of appetite, they are therefore very often attributed wholly to the stomach.

But the diseases of the stomach, which, properly speaking, produce the want of appetite, have not their immediate dependence upon any other disease, but proceed either from the quantity or quality of what is contained in it; and in this case the signs are different from the former; for in the one, the horse wholly forsakes his food; and in the other, he is dainty, yet he eats, though it be but little, and is capable of doing proportionable service.

And this imperfection, for the most part, proceeds from a lentor in the bowels, and costiveness, when a horse has stood some time in a stable, and has had full-feeding, without suitable exercise; for by that means, the stomach is not only too full, but the juices turn corrupted by their stagnation, and acquire some ill qualities that may take away the appetite, or cause a horse's appetite to be vitiated; and when the last happens, we often observe them, by a sort of instinct, crave after those things which are very different from their

natural food, as the eating of mud, or clay out of the walls.

But in handling the cure, we need say but very little concerning that species of want of appetite, which is often the sudden effect of some accident, or ill management; for this is frequently cured by blood-letting alone; as it is, for the most part, no other than a symptom of a beginning fever, and of such a one where the blood, if at all, is but little vitiated.

Wherefore, in any such case, a quart of blood may be taken from the neck vein, after which may be administered such things as are cooling, and fit to keep down a fever.

His diet ought to be scalded bran, and his water sharpened as has been directed in such cases; and, with the assistance of moderate exercise, his stomach will soon come to him.

But when the want of appetite proceeds either from a constant foulness whereby the action of the stomach is hindered, that its sides cannot meet together, so as to excite the sensation of hunger, or if it proceeds from a foulness in its contents; as for instance, if there be slimy matter engendered in it, either from raw undigested food, from the want of a free discharge of the dung, or if any sharp corrosive matter be in it, causing a depraved appetite, or a sensation of hunger, by fits, as we sometimes observe; the most rational method in all these cases is, in the first place, to evacuate and purge the
the

the stomach by such things as are appropriated either to sweeten the juices, or attenuate the viscid phlegm.

And this method seems the most reasonable, with respect to horses, because, as we have elsewhere observed, they are no way disposed to vomit, or throw any thing out of the stomach that has once entered into it; and that seems to be owing to the figure of the gullet, which is contracted more than in some other creatures, and has a spiral direction a little above its insertion into the stomach; for had it been otherwise, though a horse might have vomited as well as some other animals, yet as he feeds much with his head downwards, he would then, perhaps, have lain under the inconvenience of having his food fall sometimes back again into the gullet, which would be very troublesome to him; and we may likewise observe, from frequent experiments, if there be never so large a quantity of any vomiting medicine given to a horse, it has no effect that way, but either works by a discharge of the dung, by sweat, or insensibly upon the mass of blood as an alterative.

And therefore purging medicines are, no doubt, the most appropriated to give immediate relief in all such foulnesses of the stomach as are of this kind. But if a horse be costive, no purging physic ought to be given him but what is very moderate, unless the bowels are first cleansed by the use
of

of clysters. If the intestines be very full of dung, and if that be hardened when purging medicines are administered by the mouth, they sometimes prove fatal to horses; for when the physic cannot make its way downwards, it flings a horse immediately into convulsions, because he wants that benefit of nature which men and some other animals have, of throwing upwards. But we shall lay down the method that is proper to be used in those disorders.

And first, if the horse be costive, the following emollient clyster may be given, after he has been raked by some boy, or one that has but a small hand.

Take of the roots of marsh-mallows, sliced, half a pound; the leaves of common mallows, three handfuls; linseed and fenugreek-seeds, of each two ounces; boil them in three quarts of water for the space of half an hour, strain the decoction through a coarse cloth, while it is hot, and dissolve in it four ounces of honey, two ounces of common treacle, and six ounces of oil or butter. Let this be injected luke-warm, holding his tail close down, as long as possible, and let it be repeated for two or three days, or until the horse's body is open enough, and that there is a way made for purging. After which he may have the following drench given him:

Take

Take of the roots of gentian and zedoary, sliced, of each two ounces; hyssop and rue, of each two handfuls; the leaves of fenna, two ounces; anniseeds or fennel-seeds, powdered, an ounce; boil them in three pints of water to the consumption of one pint, dissolve in the decoction four ounces of lenitive electuary.

To be given in the morning, keeping him fasting two hours before and one hour afterwards; then he may be walked gently for an hour more, and when his phyfic begins to work, he may be permitted to drink warm water strewed with oatmeal, or the following purging balls may be given:

Take of the best aloes, one ounce; diagridium, two drachms; galangal, in powder, half an ounce; cloves, half a drachm; make them into balls with flour and butter.

These balls, or the proceeding draught, may be given with success to recover lost appetite; and may, for that purpose, be repeated as often as there is occasion, which needs be but seldom, unless the horse has been some considerable time without a good appetite; and in that case, he may be purged twice a week, for a fortnight or three weeks successively; and the days he does not purge, the following powder may be given him
in

in a decoction wherein a handful or two of rue has been boiled :

Take gentian, in powder, two drachms ; galangal, zedoary, and calamus aromaticus, of each a drachm and a half ; cinnamon and bay-berries of each a drachm. Let these be pounded together, and be given in the decoction, or in a pint of white wine.

If the horse be of a delicate watſhy conſtitution; and unable to bear much purging, all that is neceſſary in that intention may be answered by clyſters; with the uſe of ſcalded bran now and then ; which we rather recommended before purging.

The above powder may be given every day, or for want of it what our common farriers oftentimes adminiſter to reſtore appetite, viz. Garlick and rue, champed, and pounded with butter and flour, may be very ſerviceable, eſpecially to ſtrong robuſt horſes.

But above all things, the uſe of chewing-balls, and conſtant exerciſe, is abſolutely neceſſary ; and with the concurrence of a few of thoſe helps, above directed, will ſoon recover a horſe to his appetite.

If you obſerve your horſe mangle his hay, and continually nibbling mud and dirt, you may then very reaſonably ſuppoſe his ſtomach to be foul,
and

and out of order, nor is it improbable that this desire after earth and mud, proceeds from an acidity and sourness of the juices; for those creatures, by a sort of instinct, very often of their own accord, take to such things as are proper to relieve them of troublesome and uneasy sensations, and this is very observable in dogs and cats, who are led, by the same instinct, to swallow rough blades of grass in order to make themselves vomit when they find their stomachs oppressed. These are instances that are familiar, and known to every one; but natural history abounds with an infinite number of the like instances in other creatures, so that we are not to doubt but that an animal of the greatest sagacity, as a horse certainly is, and as he is also as much exposed to diseases, if not more than any other creature, must therefore, when at liberty, often times be led to his own proper remedies; we could give some very odd instances of this in horses, from our own observation, but we shall only here take notice of what relates to the present case.

They must needs have but little acquaintance in physic who do not know what virtue earths have in them, not only to dry up a superfluity of moisture, but some of them to imbibe and take off the acidity of sour liquors; and it is, no doubt, from such a depravity in the stomach, that a horse leaves his ordinary food to eat dried earth or mud; and this he is forced to do from the crav-

ings of his appetite, and is often compelled to take up with the worst for want of something more efficacious. We once took an opportunity of gratifying a horse in a very ardent desire of this kind, who had suffered very much from his keeper, and had been often beat for eating clay out of the wall; we brought him a piece of chalk, the bigness of a man's fist, and laid it into the manger; he turned it over with his nose several times, and at last broke off some of the corners, and eat them; whereupon, we took up the chalk to break it into small pieces, and because he thought we were going to rob him of it, he pushed his head towards us with all the eagerness imaginable, and when it was broke he eat the greatest part of it, and then fell immediately to the hay. The officer who kept him, told us he gave him more chalk afterwards, and observed he eat his hay the better for it; but being commanded to march soon after, he was perfectly cured by the exercise, and had no farther cravings of that kind.

This remedy is very easy, and may be had every where; or instead of it, burnt harts-horn in powder, which is yet much better, may be given; but those remedies will be still the more efficacious, if, previous to them, purging be administered, and afterwards constant exercise be given; there being nothing contributes so much to wear off those disorders as exercise, when it is moderate.

But

But the remedies prescribed in the following section, will also be useful in this case.

S E C T. XVI.

OF THE HUNGRY EVIL.

THIS distemper generally proceeds at first from bad keeping, or excessive purging; but there are some horses who seem to be incurable, because, though they feed plentifully, their common and natural discharges seem, at the same time, to be more than proportionable to their feeding.

Most horses that have this infirmity upon them, are but of little value, therefore we shall spend but little time about it; however, since there may be some very good horses that have a voracious appetite after such cases as we have mentioned, and may be recovered, we shall lay down the most proper means that can be made use of for that purpose.

And therefore, since the hungry evil in them proceeds from emptiness, they ought, besides plenty of food, to have those things administered to them, that are proper to lubricate and soften the fibres of the stomach, and to lessen that sensation; for which purpose the leaves of mallows, and roots of marsh-mallows, should be boiled in their water, with liquorice; and their corn should

be mixed with mucilaginous seeds, as fenugreek and linseed. But if he cannot be easily brought to the use of those things in the way of diet, they may be given him after the following method :

Take the roots of marsh-mallows, two pounds; linseed and fenugreek-seeds, of each four ounces; first pound the seeds, and then the roots, to a mash, and afterwards make them into balls as big as a pullet's egg, one of which may be given in the morning, one about noon, and another in the evening.

The carminative stomach-balls may also be given in this case, especially if the brimstone be kept out of them; all fat unctuous medicines, for those not only help to fatten a horse, but take off those violent sensations of hunger, that cause him to eat so voraciously, as is usual in such disorders. —See Appendix for the aromatic or carminative stomach-ball.

S E C T. XVII.

OF THE DISEASES OF THE INTESTINES OR GUTS, AND FIRST OF THE CHOLIC.

THE cholic, or gripes, which in the farriers' terms, though very injudiciously, is meant to signify most of the diseases of the guts, is no other

other than the pain that accompanies all the particular disorders those parts are liable to; and, therefore, when a horse is troubled with cholic-pains, the farrier ought diligently to enquire into the true causes thereof; for as no part is more sensible than the intestines, any thing retained too long in them, or any thing ejected or thrown out in an over great quantity, will on some occasions bring a horse into exquisite torment; we shall therefore take particular notice of the different causes of such disorders, and suit the method of cure according to their several exigencies.

Horses are seldom or never troubled with any other obstruction in their bowels, except what proceeds from the dung hardening and obstructing those passages. We shall here add, that when the matter is pent up in the first passages, as in the stomach and guts, and putrifies there, the juices turn sour, viscid, and ropery, and fret the tender membrane which covers the inside of the guts by the viscidty; also the wind is entangled, which creates a swelling and distention, so that the belly becomes hard like a drum, and if the excrements be very much hardened in the great or straight gut, they cause a pressure upon the neck of the bladder, and hinder the passage of the urine so much, that a horse cannot stale; sometimes the fundament swells, and all towards the sheath, which is very dangerous. A horse in this condition must needs be in great pain,
and

and even in danger of his life, if a speedy relief is not had; therefore, in order to the cure, after he has been raked, and that with a great deal of caution, the following clyster ought to be injected:

Take the leaves of mallows, marsh-mallows, and mercury, of each three handfuls; boil them in three quarts of water, for the space of half an hour; to the strained decoction, add lenitive electuary, four ounces; spirit of wine or brandy, half a pint; and oil or butter, half a pound. Let this be injected luke-warm, and retained as long as possible.

Four hours after the operation of this clyster, if the horse is not very much relieved, the following may be given:

Take leaves of mallows, and marsh-mallows, of each three handfuls, as above directed; linseed and fenugreek-seeds, cummin-seeds, and aniseeds, of each two drachms; bay-berries, cubebbs, and Jamaica pepper, of each one drachm; and dried mint, two handfuls.

Let these also be boiled for the space of half an hour, or be infused in boiling water for the space of two hours, and to the decoction add one pint of emetic wine. Let this be given as the former, and by the help of these, the adstriction of the bowels, or costiveness, may be removed.

But

But if the horse has, along with his costiveness, violent cholic-pains proceeding from wind, and phlegm, after the grosser excrements are discharged the following clysters may be given :

Take red-rose leaves, two handfuls; tops of centaury and wormwood, of each one handful; boil them in two quarts of water to three pints; and in the decoction, dissolve two ounces of diascordium, and half a pint of treacle-water, or spirit of wine.

This will infallibly take off the pain, and lie in the bowels like a cordial, without giving him the least motion to dung, but compose and lull his spirits, and in a minute take off the violent spasms, or gripes; if the pain should chance to return, the same may be repeated, and if necessary, the dose of diascordium may be enlarged to three ounces, or more; and there is hardly any kind of cholic-pain, but what may be carried off by it; and we have, by this method, cured horses that have been in the greatest misery imaginable, and have seen them in a quarter of an hour rise up to feed, that before were like to dash out their brains against the walls.

Cholics and griping pains in the bowels of horses, become suddenly mortal; that without any regard to other circumstances they ought immediately to be removed; and if costiveness happens to continue, upon the use of the remedies
which

which are prescribed for that purpose, the symptom will of course go off in the sequel of the cure; for, after the most urgent symptoms are removed, the next intention must be to destroy the cause of the distemper, otherwise it may return again.

Hence we recommend gentle purging, with the use of such things as are hot and penetrating, and this we do contrary to the opinion, though not altogether to the practice, of most people called Farriers, who believe costiveness to proceed from inward heat, whereas that heat is only the effect of costiveness, and not the cause, as is easily demonstrated, and is occasioned chiefly from cold phlegmatic tough matter in the stomach and guts, which bind up the excrements, when the guts are full and pressed upon it, and causes heat; therefore, as all hot spicey things are proper to cut and destroy those viscidities which cause the lentor, and harbour wind, they ought more or less to be exhibited in all intentions that are requisite to the cure of costiveness. The following purge may for that reason be given, and will be found very profitable after the violence of the cholic-pains are over, and the obstinate stoppages of the bowels are removed.

Take mallows and marsh-mallows, of each one handful; roots of marsh-mallows, six ounces; leaves of fenna, two ounces; bay-berries and juniper-berries, of each one ounce; boil them in three pints of water, to one quart; strain out
the

the decoction through a sieve or coarse cloth, and add two ounces of syrup of buckthorn.

Or this,

Take mallows and marsh-mallows, of each two handfuls; fenna, one ounce; jalap, in gross powder, half an ounce; carraway-seeds, coriander-seeds; or fennel-seeds, of either an ounce and a half; boil them in the same quantity of water as above directed, to the consumption of a third part, and in the strained decoction, dissolve four ounces of manna.

Or,

Take eight ounces of manna, two ounces of cream of tartar, dissolve them in a quart of sweet whey, and add eight ounces of the oil of olives, and as much solutive syrup of roses.

Either of these may be made use of after clysters have been injected, the horse being kept from feeding two hours before, and two hours after; he may then be walked abroad for the space of an hour, and upon his return, it would not at all be amiss if there was a pint of olive oil, in two quarts of warm water, prepared for him with oatmeal, and administered through a horn; and the same quantity repeated four hours after.

This will help the operation of the physic; loosen and wash down the viscid and slimy matter, which not only fetters the excrements, but entangles the wind, which causes violent and ex-

cessive pain by its pressure and distention of the colon or gut. But if the horse be of small value, and that it is not worth while to be at all this expence and trouble about him, the following purging drench may be made use of:

Take mallows and marsh-mallows, of each two handfuls, or four handfuls of common mallows, if marsh-mallows are not easy to be had; jalap in powder, two ounces; aniseeds, or fennel-seeds, an ounce; boil them as above directed, and add to the decoction four ounces of common treacle.

Or,

Take half an ounce of the bitter-apple in powder, three drachms of aloes, of diagridium one drachm; make them into a ball with flour and butter; to be given as the former.

If your horse's fundament be swelled, which sometimes happens to that degree, before raking and clysters are administered, that he cannot stale, because when the excrements are hardened and pent up in the great or straight gut, that being full, it presses upon the neck of the bladder so as to hinder the passage of urine; and if this symptom does not wear off soon after those means have been used, recourse must be had with all speed to such things as are proper to keep down inflammation, for which purpose, we recommend the use of the following decoction:

Take

Take of the red rose-leaves, two handfuls; boil them in a quart of water for the space of half an hour; add to the decoction a small quantity of spirit of wine; and with a sponge bathe his fundament and sheath often.

This decoction should always be made as warm as he can bear it, and the spirits mixed with it as often as it is used; to every two parts of the decoction one of the spirits.

His yard ought also to be kept up to his belly with a gentle bandage, because the humours fall into it with a very easy influx, as it is both a soft and dependent part, by which means the swelling and inflammation are often kept up, after the first cause is in a great measure removed; and sometimes proves the occasion of a gangrene; and therefore, to keep that suspended, the farrier, or groom, may take a piece of canvas six or eight inches broad, and fixing two straps to each corner forwards, they may be brought one on each side over his flanks, and fastened upon his reins; the hind parts should have the corners cut off according as the swelling happens to be more or less on the upper part of the yard, with one single piece of strong tape fixed to it, which coming through between his hips, is to be brought over the croup, and tied on the other two; and when this accident happens to a stone-horse, his testicles ought to be suspended in a bag of soft flaxen

cloth, which may easily be fixed to the other; by these means the return of the blood will be rendered very easy, and the swelling will subside, which for want of such a method, has sometimes been the cause of horses dying suddenly.

But since we have ascribed the cause of costiveness and dry gripes to viscid slimy matter engendered in the first passages, it will be very necessary, after the preceding means have been complied with, and the most urgent symptoms are removed, to administer such things as are necessary to destroy the remains of those viscidities; for which purpose, the following powder, to the quantity of a spoonful, may be given every morning:

Take galangal, zedoary, and calamus aromaticus, of each three ounces; the tops of dry wormwood, and the lesser centaury, of each two ounces and a half; ginger, two ounces; black pepper and bay-berries, of each an ounce; make them into a fine powder, and keep it in a glass or gallipot close covered for use.

This may be given in a decoction wherein a handful of rue has been boiled, letting him fast two hours before and one after taking it; and if your horse be of small value, you may give him every day, among a few oats, an ounce of antimony, or two ounces of flour of brimstone; or you may make it up into a paste with a little
flour

flour and butter, continuing its use for the space of one week.

Champed rue and garlick is also very serviceable in this case; but all remedies will prove the more successful, if you give your horse exercise; and indeed, that alone oftentimes proves sufficient; for by exercise the whole body is shook, and the lentor in the bowels, and the excrements, readily fall downwards, to their expulsion out of the body. We shall now put a period to this subject, with an account of two horses that were seized with violent costiveness, and where the issue proved very different.

The one belonged to a gentleman, who, while travelling, was stopped upon the road the second day of his journey; his horse was in great pain, shrunk up his belly, often endeavouring to dung, and as often to stale, but could do neither; we were informed he had been taken up from grass a week before he set out, and was observed to be very costive all that while; but because he was to have some fatigue, they thought it unnecessary to tamper with him, which no doubt was very reasonable, had he not been more than ordinary costive. The first thing done to him was raking, and afterwards he had a pipe of tobacco given him at his fundament; the smoke of the tobacco proved a gentle stimulus, and made him oftentimes essay to dung, but without effect; so that at last, being in excessive pain, hanging his head, and turning it frequently to-
wards

wards his belly, the owner thought fit to send for a farrier, who at first sight said he would die; however, he went and prepared him a comfortable drink, as he termed it, which by the smell, seemed to be some hot aromatic seeds boiled in ale.

After this he became much worse, for there being no free vent upwards or downwards, and the wind being now more rarified by the hot spicey things, and consequently taking up more space in his bowels, he often lay down, and immediately started up again, shewing as much pain and agony as a horse could possibly be in. We advised the gentleman to have him raked once more by a boy that had a small hand and arm, who being satisfied with the reasons we gave him, had it done accordingly, though it was not without some difficulty, for the horse shrunk very much, and endeavoured constantly to lie down; but at last, when he had been thoroughly raked, he began to throw out several hard balls of dung of his own accord; and at the same time staled a little; whereupon we had the entrance into his fundament done with soap, which made him dung very plentifully, and he staled so long that the stable was all afloat about him. After this a clyster of broth, wherein beef had been boiled, was given him, with a handful of salt and half a pound of butter dissolved in it, which brought away a great deal of dung, and abundance of slimy matter. He eat nothing that night, which was pretty

pretty late, but towards the morning he began to feed very plentifully, and was quite recovered of his indisposition.

Had this disorder continued upon him a little longer, without a vent to the hard excrements, which were so firmly impacted in the straight gut, a violent inflammation of that gut and the neck of the bladder must have soon happened; which, without the utmost diligence, would have brought him suddenly to his end; for in that case it would have been very difficult to have fetched out the dung, which was the only means to preserve him from those accidents.

But this will be clearly illustrated in the other instance, which was of a dragoon's horse, who after a full five weeks march, coming to stand at his ease, grew exceedingly colicive, and his fundament and sheath very much swelled.

He was committed to the care of one who was tolerably well skilled in many of the common things, but being wholly unacquainted with the structure and machanism of that creature, who was the subject of his art, committed a grand mistake in giving him a strong dose of purging physic; there being no vent for the passage of the excrements downwards, was put into the most violent agony imaginable, and at last died in strong convulsions.

Perhaps this person might, by such a method, have succeeded in cases of less obstinacy, and
where

where there was little or no swelling of the fundament; and if there had been a possibility of making the horse vomit, he might have succeeded even in this, for then the physic would have gone off that way; and after several discharges by the mouth, the remainder might have gone downwards as it oftentimes happens to human bodies; because the straining to vomit makes a strong compression of the muscles of the lower belly, which greatly forwards the dejections by the fundament; and therefore in some obstinate cases of this nature, the best physicians have ordered vomits with success. But as it is quite different with horses, and that their stomachs are not otherwise to be moved with the strongest stimuli than to create sickness that causes them to flaver a little, purging is not to be attempted in any stubborn costiveness, but by clysters.

And if this method had been taken in the instance now before us, and due care observed to remove the swelling of his fundament by proper fomentations, as he was a young horse, and not much impaired in his strength, he might have easily overcome that disorder.

SECT.

S E C T. XVIII.

OF THE LAX OR SCOURING.

THAT the reader may be properly instructed in the cure of those disorders, we shall rank them under four different heads. We have already observed, that when the excrements have lain some time in the guts, the juices by their putrefaction become sharp and corrosive, and by that means stimulate the intestines to shake off what is contained in them. But this does not always follow such a stagnation of the excrements, as may be observed from what has been said in the preceding Section. For sometimes, before such a discharge can happen, a horse will be endangered of his life, and therefore we may reasonably ascribe this difference, sometimes to the different constitutions of horses, and sometimes to the difference, of their food ; there being some kinds more liable to corruption than others. But however, be that as it may, it is very certain that the lax and scouring in horses are sometimes the effect of a preceding costiveness, and therefore we shall account this, and all critical loosenesses which tend to the solution of any disease, to be of the first kind.

The second kind of looseness, is that which proceeds chiefly from want of digestion, for by that means a scouring may happen, without any previous symptom of costiveness, and when it is so, a horse suddenly falls away and loses his flesh, and likewise his appetite; but this may be farther known by the discharge; for many things that he eats will come away whole, and his dung will be full of shreds of hay, and sometimes accompanied with slimy matter.

Thirdly, A looseness and scouring often happens when the pores of the skin, the urinary, or other discharges are obstructed; for by that means, when the excrementitious parts of the blood have not a free vent through the common passages, they are derived in a more than ordinary quantity into the apertures of the guts, but particularly into the gall-pipe and pancreatic duct, so that they may be of different colours and consistency, according to the predominancy of the juices that flow into them. When most of it is derived from the intestinal glands, the matter will be clear and watery, or clear and glassy, not unlike that which Solleyfell observes in his third kind of cholic; but when it proceeds mostly from the gall-pipe and pancreatic duct, it will be then tinged with a yellowish colour, and if there happens to be a very great quantity of the gall discharged from the excrements, whatever is voided from the fundament, must of consequence
be

be of a deep reddish colour, and is the same as that which the above-mentioned author terms the red gripes; which constitutes his sixth kind of cholic.

Lastly, A lax or scouring sometimes happens from viscous slimy matter, hindering the chyle from entering into the lacteal or milky vessels; and in this case, the excrements are usually of a pale light complexion, as they consist chiefly of chyle.

But all these are only different species of a diarrhœa; and when the scouring is large, as it happens to some full-bodied young horses, a white greasy matter, like fat, comes away in the dung; and this is what farriers term *molten grease*, which is of the same nature with the greasy diarrhœa, which sometimes happens to men of gross habits as well as to horses, and seems to be occasioned when the glands of the intestines are more than ordinarily opened, whereby the matter is evacuated from the blood into the guts, which should otherwise be deposited among the fat.

It ought to be observed, that in all those scourings that are of the first kind, and are only the critical discharge of some disease, there are seldom or never any bad accidents attending them, unless the disease has been of such continuance as to waste and attenuate the body; and therefore, when the sickness abates by any such discharge, the best way is not to be over hasty to stop it, but it ought rather to be encouraged when

it proves imperfect, and that must be done by medicines that are moderately purging; because all discharges that proceed from the intestines may degenerate into an incurable diarrhœa. Care ought to be taken not to let it run on too long, or it may be too late for a certain cure, which we shall here describe as well as for the other species of a diarrhœa, but shall now proceed to the next, where a horse loses his appetite, and when the want of digestion is manifest from an imperfect comminution of the dung, that is, when some part of the food comes away whole as it is eat.

In this case, all those things that we have already mentioned for strengthening the stomach are to be used, for which purpose we also recommend the use of diapente to those that like it; but it is not one dose that can be relied on, because it ought to be repeated every day, and so must any other stomachic, before any extraordinary effect can be wrought.

And because this disease is both in the stomach and bowels, the following clyster may be given as soon as you perceive him begin to recover his appetite, unless the looseness begins also to abate with the other symptoms, and in that case it may be let alone.

Take camomile flowers, wormwood, mint, and centaury, of each one handful; boil them in a gallon of water to three quarts, then strain or squeeze

squeeze the liquor through a cloth or sieve; and add sweet oil, one pint; common salt, two handfuls; and tincture thebaic, half an ounce; mix them together for ~~two~~ clysters, to be given warm.

This may be repeated once or twice, but if the looseness still continues, and the horse grows weak, it is a very bad sign, especially if he refuses to feed.

The next kind is that where the excrements are tinged yellow, or of a deep reddish colour, proceeding, as we have observed, from a too great profusion of the gall and pancreatic juice.

In this case a horse may be first purged with either of the following remedies:

Take rhubarb in powder, one ounce; aloes, three drachms; extract of camomile flowers, and jalap, of each eight drachms; oil of aniseed, one drachm; with a little wheat flour, and a sufficient quantity of molasses, make it into a ball.

Or,

Take bitter purging salts, ten ounces; jalap, half an ounce; syrup of buckthorn, two ounces and a half; ginger, three ounces; mix them together in a quart of warm water for one dose.

If the horse be of small value, you may give him two ounces of snake-root, half an ounce of diaphoretic antimony, made into a ball with any
syrup;

symp; for after purging has been once or twice repeated, those medicines which promote sweat, and other secretions, are to be used, as they make a revulsion, and consequently lessen the discharges by dung; wherefore we recommend diascordium, mithridate, or the soap-pill, which may be administered in the following manner :

Take of the soap pill, one ounce ; prepared chalk, two ounces ; winters-bark, one ounce ; with any syrup make a ball, to be administered every evening.

Or,

Take pill-syrax, bees-wax, and mastic, of each an ounce ; and oil of aniseeds, enough to form a ball ; to be given as above.

The following drench may also be made use of with good success, to astringe and dry up the stomach, bowels, &c.

Take saffrafras chips, half a pound ; oak-bark, in gross powder, three ounces ; winters-bark, one ounce ; boil them in two quarts of water to one quart, then strain it and administer the liquor warm, and repeat it every morning and every evening.

This should be continued two or three days successively, and unless the scouring be very violent, it will certainly put a stop to it.

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But the practitioner is to observe, that if a horse has a fever upon him which does not diminish, but increases with the looseness, those medicines which act more immediately upon the bowels are then to be made use of, therefore the following clyster may be injected, which will prove very efficacious in this case :

Take lime-water, three quarts ; guaiacum shavings, one pound ; boil them till one-half be evaporated ; then strain the liquor, and add two drachms of opium. This will be enough for three clysters, which may be injected three times a day very warm.

Or,

Take oak-bark, in powder, four ounces ; galls, one ounce ; boil them in three quarts of water to one-half ; then strain it and administer as above directed.

These clysters are always to be made in a lesser quantity than those that are purging, and the horse's tail to be kept close down, that he may retain them as long as possible, and as soon as he flings out the first, which perhaps may not be in the space of four hours, it must be followed with another, and so on until the looseness is quite stopped ; which by the help of the clysters, will soon be conquered, unless his strength be quite wasted,

ed, and that he has lost all sensation in his bowels.

We now come to the cure of the last sort of scouring, which has been mentioned before, when the chyle is discharged with the excrements; and as this indisposition proceeds from slimy matter obstructing the passages into the lacteal vessels, the most proper method to be taken at first is to purge the animal, for which purpose we recommend the following :

Take of bitter purging salts, eight ounces; sal polychrest, two ounces; dissolve them in three quarts of very thin water-gruel; then add an ounce of rhubarb; give it the horse at three different times, an hour between each quart.

Or,

Take salt of tartar, sal polychrest, and bitter purging salts, of each three ounces; rhubarb, one ounce; mix them in three quarts of barley-water to be given as the last.

Let sal prunellæ be dissolved in his common drink, because all those diluters are most proper to wash off that viscid matter which adheres so closely to the guts, and hinders the chyle from entering into its proper vessels, especially when they are used plentifully; but if this sort of flux should proceed from a stumous obstruction, as it sometimes

times happens to human bodies, it would prove incurable.

As to that which farriers call *molten grease*, it being for the most part the concomitant of every large scouring, that symptom generally wears off in the process of the distemper, and requires no particular management, distinct from what has been already prescribed for the third sort of looseness, which are purging and astringent clysters, with the assistance of those things that are proper to promote perspiration through the pores. In all violent disorders of the intestines, there is generally a weakness in the stomach, therefore it can never be amiss to exhibit such things as are proper to procure a good digestion, at the same time that other means are used to carry off the more urgent symptoms, and these ought to be continued, especially to a horse of value; and indeed it is for want of such helps that many horses dwindle away or fall into other distempers, after the looseness has in a great measure been overcome.

The food that is to be given in such disorders should be the cleanest and best hay, bran moistened with red-port, and parched barley.

As all those diseases have their primary cause from colds, ill-usage, or from foul corrupt feeding, and want of exercise, the owner should keep an eye over his horse and learn his constitution, by which he will know what he is able to bear, consequently by such care these accidents may in a great measure be prevented.

S E C T. XIX.

OF A DYSENTERY, OR BLOODY FLUX.

THE causes of this disease is an acrid blood, erosion of the intestines, abrasion of their mucus, long continuance of a diarrhœa, indigestion, &c. in fact, it is too often from an advanced degree of a diarrhœa, and particularly of that sort which proceeds from a profusion of the pancreatic and bilious juices; for when the discharge from those parts is very much enlarged, it causes a still greater influx of blood and humours towards them, which being more than can be converted into the proper juices, forces itself through the interstices of the vessels, and is discharged with these juices into the guts.

Sometimes it resembles the washing of flesh, sometimes there is a mixture of purulent matter, or corruption, along with it, and sometimes little or nothing comes away but pure blood, but this last kind proceeds from an aperture of the internal hæmorrhoidal vessels.

But it is to be observed, a bloody flux very seldom happens to horses, insomuch that Solleyfell has given it no place among other diseases of the like nature; and for our own part, we cannot say we have ever seen blood come from a horse's
fundament,

fundament, otherwise than by the pressure of hard dung upon the great gut, which by that means has only squeezed out a very small quantity from the vessels thereof; yet because that distemper may, without doubt, seize some horses, as it is not inconsistent with the œconomy of that animal, and as some authors have mentioned it in all its different appearances, we shall therefore give such directions as are necessary for the cure. It is proper, in the first place, to make a revulsion by taking a moderate quantity of blood from the neck-vein. This is convenient in all fluxes of blood from the inferior parts, unless the horse be exceedingly weak.

If there be a mixture of purulent, corrupt matter after bleeding, moderate purging will be very proper, with such things as have been prescribed in the preceding section; all the other medicines, recommended to make a revulsion by sweat and insensible transpiration, are also to be complied with, as also the astringent clysters there recommended, which in most cases will answer the end; we shall therefore only add one more.

Take a quart of forge-water, and boil in it four ounces of oak-bark, two ounces of tormentil-roots; balauftines and red rose-leaves, of each a handful. To the strained decoction add three ounces of diascordium, one ounce of

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mithridate

mithridate, and half a drachm of opium. Let this be injected warm, and repeated as often as there is occasion; if you are provided with a syringe that has a pretty large pipe, you may sometimes add two ounces of French bole, in powder, or sealed earth.

But above all things you are to avoid mixing oil or butter, or any other greasy matter with clysters that are of this intention, as is common among farriers; for these things are directly contrary to the nature of those applications, and will not only render their operation ineffectual, but increase the disease, and instead of astringing and fortifying the bowels, will weaken them by causing a greater relaxation of their fibres.

S E C T. XX.

OF WORMS, BOTS, AND TRUNCHEONS.

THERE are several kinds of vermin bred in the bodies of horses, which go under the denomination of bots, and worms, and truncheons. The worms are of divers colours and shapes; some resemble earth-worms, others are small and white, sharp at both ends like needles. The truncheon is thick and short, and the bot is not unlike a small caterpillar, the last are commonly found

found in the straight gut, especially of some horses when they are first taken from grass.

We have taken notice of another kind, which resemble wood-lice, only that they have fewer feet, are of a deep reddish colour, velvety on the back, like a bot, and made up of several folds. These, as some authors will have it, are bred in the stomach, and abide in it, and devour all the nourishment, so that a horse, if he be never so great a feeder, cannot thrive while they are in his maw; and they farther say, that those kinds of worms are oftentimes the occasion of a horse's death, by eating holes in the stomach. But it is very certain, as soon as an animal dies, those parts that turn first to putrefaction, as the aliment in the stomach, which is kept under close cover, must and will soon breed vermin, and that of different kinds, then, and then only are living worms in the dead horse's stomach. It is reasonable enough to believe, that the seeds of divers insects may be deposited among the food of most animals, and be thus conveyed into the stomach, and may be brought to life very suddenly after the animal is dead; but that worms, or any other kind of vermin, can either be bred or subsist in the stomach of any living creature, is as impossible as a mouse to live under the farrier's anvil while he is at work upon it; for it is very well known, that the muscular action of
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the stomach, by which it is kept in constant motion, would much sooner destroy any such creatures, if it was possible for them to breed there, than the common food which they eat, that being harder and much more difficult to be broken than the vermin.

And therefore, Markham's and other authors' assertions must be as false as ridiculous, and only taken upon trust from the speech of some mountebank, where speaking of the red worms, he says, "He has seen horses, whose stomachs have been eaten quite through with them, so that the meat which they eat could not be held in their stomachs, but fell, upon the swallowing of it, into the body, making the belly swell like a tun; and that they died in violent agonies." Neither will the histories we have of worms being voided at the mouths of men, women, and children, however authentic, avail any thing to prove their subsisting in the stomach, since it is very certain they have been thrown upwards like the gall or excrements in the iliac passion, when the peristaltic motion of the intestines has been very much inverted, and these have been but a very short while in the stomach before their ejection.

We may therefore very reasonably affirm, since the modern discoveries have shewn us the true use of the stomach, that this sort of vermin can
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only be bred and subsisted in the guts of any live animal, and not in the stomach; and when they are found in the stomach at any time, it is either after the animal is dead, or else they are brought into it in the manner we have already mentioned,

The cause of worms is from foul feeding, and very often a bad digestion, for that will have the same effect as corrupt and unwholesome food. For the aliment, when it is not sufficiently broke and comminuted in the stomach, turns to crudities, and is rendered the more liable to putrify in the guts; so that a proper matter is furnished for the production of vermin; and therefore, we may often observe, that as in children, even so young horses are more liable to be infested with worms, than those that are grown to maturity; and this may probably proceed from the weakness and flexibility of the solid parts, whereby, though their appetites are at that time sensible and vigorous, yet the stomach must act less forcibly upon the aliment, than when they are arrived to a more advanced state, so that of consequence they may be rendered more liable to the production of those animals.

The signs are such as appear in a cholic, for besides that, those insects occasion a titillation in the intestines, the viscid gross and putrified matter whereby they are engendered, cause a velli-
cation

cation and frequent twitches, and withal so much pain, that a horse appears to be in all the agony imaginable, lying down and starting up, again by fits, oftentimes striking the belly with his hind foot, and oftentimes rubbing his fundament against any wall or post that happens to be near him; and when there are great quantities of these vermin, especially when they are harboured in the great gut, they then come away, and appear plentifully in the dung.

The cure consists of all those things that are proper to destroy the viscidities in the bowels, and at the same time to strengthen the stomach; for by that means a horse digests his hay and corn, and nothing but the grosser parts go downwards into the guts, so that then it is impossible for those vermin to be easily engendered there. And because purging is of the most immediate efficacy in all such cases, it is therefore proper to begin the cure that way, and for that purpose, if there be no obstructions in the straight gut, which may first require the use of clysters, we recommend the following:

Take jalap in powder, and senna, of each one ounce; boil them in a quart of water, to which add buckthorn syrup, four ounces.

Or,

Take rue two handfuls, boil it in two quarts of water to one quart, then strain it, and add sal diuretic;

diuretic and sal polychrest, of each an ounce. Let your horse be kept from feeding two hours before and two hours after, giving him moderate exercise to help the operation of the physic, and at night he may have scalded bran to eat.

But the following are the proper purges to destroy worms and wormy matter, that have mercurius dulcis, cinnabar of antimony, or æthiops-mineral, joined with them :

Take of Barbadoes aloes, in powder, ten drachms ; cinnabar of antimony and mercurius dulcis, of each three drachms ; diagridium, one drachm ; oil of aniseeds, two drachms ; with flour and molasses form it into a paste, divide it into two balls, and give the horse one of them every other evening.

This being three or four times repeated, will destroy all manner of worms, and carry off that slimy matter in which they are engendered, and without the least danger.

The mercurius dulcis may be had at any chymist's or apothecary's ; as for the æthiops, it is made of equal parts of quicksilver and brimstone, rubbing them in a mortar till they are incorporated and turned to a black powder ; half an ounce made into a ball with flour and honey may be given at pleasure, for a week together, one every day.

After your horse has been sufficiently purged with the remedies before mentioned, the following powder may be given for a week or a fortnight, and it will be of great service to destroy all the remains of the distemper :

Take galangal, in powder, one pound ; prepared tin, half a pound ; aloes, four ounces ; sal polychrest, six ounces ; testaceous powders, compound, twenty ounces ; mix them together in a fine powder, and keep it in a close bottle for use. The dose is three ounces mixed into a paste with wheat flour and molasses, to be given every evening.

There are many other remedies appropriated to destroy worms, which are very good when rightly applied, as a quart of beef or pork-pickle, rue, St. John's wort, tops of broom, male fern, favin, citron-seeds, wormwood and wormseed, garlic, onions, and such like things ; but none can come up to mercurius dulcis, and cinnabar of antimony, or the æthiops-mineral, for immediate efficacy.

Some of the farriers, for cheapness, make use of alum, black-sope, burnt vitriol, and similar articles ; some exhibit corrosive sublimate, or red precipitate, as much as will lay upon a silver penny ; but as these last medicines, such as the sublimate or red precipitate, cannot be used internally without great danger, especially to brutecreatures,
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who can never be brought to take what may be proper to carry off their ill effects, they ought therefore not to be given in any case ; for though they may, by their powerful efficacy, succeed in some circumstances where a horse happens to be robust and strong, yet when it is otherwise, if they are not the occasion of sudden disorders, they will lay the seeds of a bad constitution, and render a horse unserviceable for the future.

S E C T. XXI.

OF CHOLICS, OR VIOLENT PAIN IN THE BOWELS.

WE have already taken notice that most of the diseases of the guts will cause choleric-pains when they come to an extremity; but horses, who are oftentimes under the direction of bad managers, and are themselves only guided by instinct, must therefore be rendered liable to many inconveniences, and to none more than those which shew themselves immediately in the bowels; for the drinking cold water when a horse is hot, or if at that time he be rode deep into the water, or if he be suffered to cool on a sudden when he has been at hard exercise, any such mismanagement very frequently brings on the most intolerable disorders, as we daily observe.

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And

And this is easy to be accounted for, because when the body is hot, and the pores open, any sudden cold causes them to be immediately shut up, so that all the common and necessary discharges are in a great measure hindered, by which means the vessels of the colon, and sometimes of the stomach and other bowels, are cramped, or distended, and this is the true cause of the pain, and likewise of the wind and flatulency that is observable in such cases; for although wind may often proceed from other causes, as from the viscosity and sliminess of the matter that is sometimes harboured in the bowels, yet in this case it is chiefly occasioned by their over great relaxation, whereby they lose their tone and peristaltic motion, which is absolutely necessary to the expulsion of the wind as well as the excrements.

As for the signs of these sudden disorders, they are sufficiently known to every one; we shall therefore proceed to the cure.

First of all, if the horse be hot and feverish, as it sometimes happens, a moderate quantity of blood may be taken from the neck-vein, after which a clyster ought to be injected, and such a one as will stimulate the guts and promote their peristaltic motion; for by that means the excrements and wind will not only be ejected, but the stagnant blood must also be forwarded; for
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which purpose nothing can be more servicable than a quart of emetic wine, given luke-warm; but because this is not to be had without expence, it would therefore be worth any gentleman's while to make it, and keep it by him, and that is easily done, only by infusing four ounces of crocus metallorum, or liver of antimony, in a gallon of ale for several days, and it will give it an emetic quality. But for want of the emetic wine, the following clyster may be used:

Take common salt, one pound; sweet oil, half a pint; aloes, in powder, an ounce; buckthorn syrup, six ounces; mix it in a quart of thin gruel, and give it warm.

Or,

Warm a quart of pork or beef-pickle, and inject it; this will do for a shift, when nothing else is at hand.

Let either of these be given, taking care to keep the horse moving until the operation is quite over, and this method will be the more necessary if the horse has been full fed, and if it be otherwise, that he was empty when this accident happened to him, a clyster of broth, or of the emollient herbs and brown sugar, or molasses, will be sufficient.

After the purging clyster has finished its operation, sweat ought as soon as possible to be promoted, and that very plentifully.

Take

Take of the sope-pill, half an ounce ; camphor, two scruples ; blend them together into a ball. This is to be given the last thing at night, and to be washed down with a quart of warm two-penny.

And to comfort his bowels, the clyster prescribed in the preceding Section, to ease violent pains in the guts, may be given ; or the following which is of like efficacy, and will also help to promote the sweat :

Take galangal, in powder, two ounces ; boil it in three pints of water, to a pint and a half ; then strain and dissolve in it venice-treacle, six ounces ; to which add a pint of spirit of wine.

Let this be given milk-warm, keeping his tail close to his fundament until he has no motions of throwing it out. But a horse is sometimes so restless with the violence of those pains, that there is no keeping him on his legs, but he throws himself down every minute, and some horses kill themselves by striking their heads against the walls, who otherwise might easily be recovered if they could be managed. These ought to be buried in a dunghill all but the head, there being no case that requires that kind of immediate sweating more than this, for it is very much to be suspected that the giving of cold water to a horse
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when he is hot, and washing him about his breast and belly, may often cause an immediate foundering in the chest, and this seems reasonable enough from the extraordinary working and heaving of the flanks, which is observable all on a sudden in some horses after such accidents.

S E C T. XXII.

OF THE YELLOWS, OR JAUNDICE.

NO distemper happens more frequently to horses than the jaundice or yellows, and it proceeds from obstructions either in the gall-pipe, caused by slime or gritty matter, or when the roots of those little ducts that open into that pipe are stopped by the like matter, or compressed by a plenitude and fulness of the blood-vessels that lay near them.

Sometimes that distemper proceeds from or accompanies hard and scirrhus obstructions in the liver, and sometimes the blood will be tinged in malignant and pestilential sicknesses, and which will also happen from the bite of an adder, or other poison in the blood; the liver no doubt may be inflamed and swelled, and by that means bears its proportion from which the yellowness happens; but as this is only a symptom which
may

may be removed by all those things that are proper to carry off the fever, and as we have already laid down such methods as are proper in such cases, we shall only here consider it as any other secretion that is obstructed, and provide such means as are proper to open the said obstructions.

When the gall-pipe, or rather when the roots of its common ducts, are any way retarded, the matter which should be converted and turned into gall is taken up by the veins, and carried back again into the mass of blood, giving it a yellow tincture; so that all the parts of a horse that have a capacity of shewing the colour, as the eyes, the inside of the lip, and even the flaver from the mouth will appear yellow; but as this disease is contrary to that sort of scouring, where there is a profusion of the gall, and there being little or none of it transmitted into the guts, the excrements will therefore look of a light pale green, as if the aliment was only washed in the guts.

It is also to be observed, when a horse has the yellows, he turns dull, heavy, and sluggish, low in his spirits, and faint, especially when he is put to the least exercise; and when the distemper has continued some time upon him, he loses his appetite, and becomes poor, lean, and jaded.

While the obstructions are only in the gall-passages, it is easy enough to be cured; but when
the

the liver is indurated and hardened near those passages, as it sometimes falls out, or if there happen impostumations or ulcers, the cure will then be very doubtful; for in this last case, it will have all the same effects as any other internal wasting ulcer; and in the other case, where the liver is scirrhus and hard, these obstructions must also be difficult, because they lie out of the reach of manual operation, and also of external applications.

But in the cure we shall begin with its first stage, when we only suppose the gall-passages obstructed as above-mentioned; and to remove the obstruction, purging must in the first place be necessary, with remedies that are moderately opening, such as cannot operate too drastic; and unless there be pain and inflammation in the liver, bleeding will do but little service, however much it is in vogue in such cases.

Therefore let the following infusion be made:

Take turmeric in powder, and fenna, of each two ounces; marsh-mallow roots, four ounces; salt of tartar, half an ounce; put them into two quarts of boiling water, with four ounces of white soap, letting it stand all night; and in the morning give it the horse.

Or,

Instead of this, the horse may be purged three or four times with six drachms of Barbadoes aloes,

an ounce of turmeric, and two ounces of Castile sope, with a sufficient quantity of molasses and wheat-flour, to make a ball.

After purging in the manner we have prescribed, the horse may have now and then a little scalded bran, and sometimes boiled barley to eat, and his water may have constantly barley, turmeric, and liquorice, boiled in it, till he recovers; and a dose of the following prescription may be given to him for a fortnight or three weeks together, unless the purging alone removes the distemper, as it sometimes happens in the beginning :

Take the whites of twenty-four eggs, and three ounces of turmeric in powder, beat them very well together in a pint of pepper-mint water; Castile sope, an ounce and a half, dissolved in a pint of warm water; when cold, mix them together, and give it the horse every morning, for ten days.

We prescribe the following remedy, which seldom or never fails to carry off the yellows before it be of long standing :

Take Castile sope two ounces, dissolve it in a sufficient quantity of hot water; then with an ounce and a half of turmeric, and as much honey, make it into a paste, and form a ball.

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This must be repeated every other day, for a week at least; but in this case, the use of chewing-balls, or the champing of green juniper-wood, horse-radish, or any such thing that will be of efficacy to rouse his spirits, must needs be of great service to him; and he ought also to have every day exercise given him in proportion to his strength and ability; for nothing can conduce more to assist the medicines in their operation.

But when the yellows proceed from stony and hard obstructions in the liver, which, if they be liable to pain and inflammation, especially upon the least exercise, and you may observe him under great oppression, and will often turn his head towards his right side; in that case he must be bled, and moderately purged with the infusion above prescribed, after which the following fomentation may be used:

Take camomile-flowers, wormwood, and oak-bark, in powder, of each one handful; boil them in a gallon and a half of water to one gallon; then strain them, and add one quart of the strongest spirit of wine.

The proper way to use this, is by dipping woollen-cloths into it, and applying it pretty warm and often to the parts affected,

If this symptom does not wear off in a little time, it will soon cause the horse's death; but if

it is removed, and the horse continues still yellow, or if the distemper has continued obstinate and immoveable notwithstanding all proper means have been used, recourse must then be had to medicines of the most powerful efficacy, for which purpose, we recommend the following purge:

Take aloes in powder, ten drachms; mercurius dulcis, three drachms; Castile sope sliced, two ounces, and with a sufficient quantity of turmeric-powder and sweet-oil, make them into a ball.

This may be given twice a week, according as you find he has strength to bear them, until he has been scoured four or five times, after which, the cinnabar pills, or those for the farcy, may be given, and their use continued for some considerable time (if your horse be worth the expence) but especially if you observe him rather to mend than grow worse; and this method, when it is rightly followed, will be found to be the most rational to remove all obstinate diseases of the liver.

S E C T.

S E C T. XXIII.

OF THE DISEASES OF THE REINS OR KID-
NEYS, &c.

WE find in the books of farriers, an account of all the diseases of the reins and bladder, though there are but few who have delivered them in any regular order; and indeed some of them, as the stone in the bladder, &c. are but seldom met with; we shall therefore make it our business to spend as little of the reader's time as possible, in things that are uncommon and unprofitable; however, we make no doubt but some rare and unusual instances of stones and slime may happen to those creatures, yet the most common are only those that proceed from costiveness, from an inflammation or ulceration in the kidneys, or some defect in the bladder, or in the urine itself; what relates to the pain or stoppage of water caused by costiveness, has already been discussed under that head, as it is not to be accounted a disease in those parts, but only a symptom of another disease, and is removed as soon as that ceases; we shall therefore, in the ensuing section only consider a stoppage or a pain in making water, when the disease is confined to the reins and passages of the urine.

S E C T.

S E C T. XXIV.

OF THE STRANGUARY.

THOUGH this disease happens most frequently when there is an obstruction of the dung hardened and indurated in the straight-gut, as we have observed, yet, when it proceeds from another cause, it is most likely to be occasioned either by an inflammation of the bladder, or ulcer in the kidneys; for when there happens to be an ulcer in those parts, the sharpness of the matter proceeding from thence, may no doubt cause pain when it passes into the urethra, by abrading and carrying off the mucus that should defend that sensible part, so that a horse in this case must stale in pain, and as this will also cause an inflammation there, instead of staling freely, he will often dribble.

An inflammation in those parts arising from any other cause, as hard riding, too long a detention of his urine has generally the same effect; but an inflammation of this kind happens the more readily, if there be a lentor of the dung.

To remove all such disorders, it will be necessary to give emollient softening clysters made of a decoction of mallows, marsh-mallows, mercury, camomile, and the like, with a mixture of oils
and

and other slippery things, or clysters made of fat broths; and to make them a little purgative, common treacle or manna may be dissolved in them, to the quantity of six ounces or half a pound.

Half an ounce of sal prunellæ or purified nitre, may be dissolved in his water for two or three days together, or two ounces of crude tartar may be boiled in it. But if after hard riding you have reason to suspect an inflammation in the kidneys, the bladder, or urinary passages, which must at the same time be accompanied with feverish symptoms, it will then be very proper to take blood from the neck-vein, and the use of the clysters may be repeated as often as you shall see occasion; and if you have reason to fear an ulcer in the kidneys, in that case all cleansing balsamic medicines are to be complied with, for which purpose we chiefly recommend the following balls:

Take Castile sope one pound, cut up thin, and dissolved in a small quantity of hot water; to which add sal polychrest, half a pound, in fine powder; seeds of fenugreek and linseed, of each six ounces; salt of tartar, three ounces; crude opium, one ounce and a half; beat them into a mass with a sufficient quantity of spirit of turpentine. Two ounces of this may be made into a ball and given to the horse early every morning.

S E C T.

S E C T. XXV.

OF AN IMMODERATE DISCHARGE OF URINE,
AND STALING OF BLOOD.

A Copious flux of urine happens when the serum of the blood is too much attenuated and thin, or when the pores of the skin are constricted and shut up, or when the renal ducts (viz. the small canals that open into the hollow part or basin of the kidneys) are over extended and dilated, whereby the serum is separated in too great a quantity from the kidneys.

The first is when the serous parts of the blood are exceedingly attenuated, and the general cause is by travelling in hot weather, or eating hot or spirituous herbs in the beginning of the grass season; and we have already observed, that the pores of the skin are most ordinarily obstructed and shut up by the night fogs, or exposing a horse to the cold when he has been over heated; and the renal ducts may be dilated and extended by eating snow with the grass in winter, which is said to abound greatly with nitre, or it may be caused by drinking too much water of any kind, especially when a horse is put to hard exercise, for by that means it suddenly precipitates and falls downwards in a too great quantity into the
reins,

reins, so that the above-mentioned ducts become widened beyond their usual dimensions.

After this it will not be difficult to understand how a horse comes to stale blood; for though blood may sometimes proceed from an ulceration of the kidneys, when they are worn and abraded by sand or gritty matter, or by the acrimony and sharpness of the corruption that proceeds from the ulcer; yet the most usual cause of staling blood happens when the renal ducts have been overdistended by any of the causes before-mentioned; and blood for the most part follows a too great profusion of urine, though this is very seldom attended to by farriers.

As to the cure, whether there be only a great profusion of urine, or a flux of the blood, it is to be performed chiefly by medicines that strengthen and agglutinate, and likewise by such things as will divert the humours another way, by opening the pores; only, in case of blood, a vein should by all means be opened in the neck or breast, to make as speedy a revulsion as possible; because this kind of hæmorrhage proves sometimes fatal to horses, and that very suddenly.

After bleeding, a cooling purge, wherein sal polychrest or sal prunellæ has been dissolved, will be very convenient, as the following:

Take sal prunellæ and sal polychrest, of each one ounce; veleres, in powder, two ounces; barley-water,

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ley-water,

ley-water, one quart ; honey, half a pound ; made warm, and given early in the morning for two or three days.

Or,

Take rhubarb and jalap, in powder, of each half an ounce ; salt of nitre, one ounce ; with a sufficient quantity of honey and flour, make them into a ball, to be given as above ; be careful that the horses have warm mashees of bran and water during the operation of the physic.

But if the flux of blood be violent, take two ounces of salt or sugar of lead, and dissolve it in a quart of vinegar or verjuice ; and apply it cold to his breast and it will stop it immediately, unless it proceeds from some pretty large branch of an artery, and in that case, unless the rupture be in the urinary passage, where it may be reached by a styptic injection, it will readily prove mortal.

If your horse has got a fever, his feeding must be very moderate ; if he has no other accident besides a flux of urine, he may be indulged to feed somewhat more liberally, and among his oats may be strewed the seeds of melons, gourds, or white-poppies ; three or four of the heads of the said poppies with the seeds may be cut to pieces and boiled in his water, which will give it no disagreeable taste. You may also give him now and then half a pint of sweet-oil, for all those things are
very

very proper, and they will help to blunt the asperity and sharpness of the urine; but care must be taken not to let him drink too much water, but rather give it him the oftener, unless it be softened in the manner we have directed.

S E C T. XXVI.

OF THE COLT-EVIL, SHEDDING OF THE SEED,
AND MATTERING OF THE YARD.

THE disorder called the *colt-evil* is a continued stiffness in a horse's yard, and is so called because it is a disease incident to colts, and is brought upon them by having their full liberty with mares while they are not able to cover them; but the disease which generally goes under that denomination in this kingdom, is no other than a swelling of the sheath.

It may be easily cured in the beginning, only by bathing the sheath with some warm fomentation, made of emollient herbs, &c. as mallows, marsh-mallows, wormwood, camomile, oak-bark, and the like, with a mixture of spirit of wine; but if you find the swelling pretty hard, and that there are the signs of heat and inflammation, he

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ought to be both bled and purged, and his yard tied up to his belly, making a hole in the bandage for the passage of the water.

The shedding of the feed, if a horse happens to have any such disease, may be easily known by a weakness and debility; but that which farriers bring under this denomination, is only some weakness of the reins, occasioned by a strain, or violent exercise, or the solution of a cold, which is sometimes followed by a running at the yard.

But the cure is the same, whether it be feed or only matter from the reins, and may be performed by only once or twice purging, and the use of turpentine balls, as the following;

Take Venice turpentine, half a pound; boil it in water till it is quite of a hard consistence. The dose is the size of a large walnut, dipped in sweet-oil, every morning and evening.

The mattering of the yard proceeds sometimes from the sharp frosty air causing an ulceration, but chiefly when a horse has hurt himself by being too eager in covering a mare, for as the yard is of a loose and spongy substance, if it therefore happens to be bruised, it easily becomes sore and ulcerated, and when the skin is only fretted off from any part of it, from thence issues a considerable
discharge

discharge of foetid stinking matter, and may be of ill consequence if due care be not taken, though at first it may be cured by bleeding only, and bathing the part with warm spirit of wine; but the best way of using the spirit is to take him out of the stable, for when these are applied to so sensible a part as the yard, the smarting pain will be apt to make him lame himself unless he has room; but that does not last above one minute.

If the ulcer or excoriation be inwards, which can only be distinguished by the matter proceeding from the urinary passage, and not from the pain in staling, as the farriers suppose; for the least fore outwards, as it is more or less accompanied with inflammation, will exhibit the same signs, as the urine passes through the inflamed parts; in that case, the following mixture may be injected three or four times a day, and it will soon cure him of that symptom.

Take the yelk of an egg and two ounces of Venice turpentine, beat them up in a mortar till well incorporated, then add a pint of rose-water, and mix them together, after which add four ounces of camphorated spirit of wine.

Put the whole mixture into a phial, shaking it as often as you have occasion to use it.



SECT.

S E C T. XXVII.

O F T H E D R O P S Y.

ALL our English authors, and some Italians, have enumerated a dropſy among the diſeaſes of horſes, and ſome affirm poſitively that they have cured it in all its different kinds ; but that which chiefly happens to horſes is what the farriers call the *universal dropſy*, and ſhews itſelf more or leſs in all the external parts of the body, but eſpecially the legs and thighs, and they are the moſt dependent ; and we have obſerved, in caſes of the greaſe, when that happens both before and behind, it generally proceeds from a dropſical diſpoſition.

The cauſe is from all kinds of ill-uſage, but eſpecially from bleeding and purging horſes beyond their ſtrength ; for theſe unſeaſonable evacuations render the blood languid and ſlow in its motion, and for want of ſpirits it has not force enough to reach the paſſages of the ſkin ſo as to make the uſual diſcharge, but its ſerous parts burſt through the ſmall veſſels, and are deposited under the ſkin or the fleſhy pannicle.

The ſigns are a laſſitude and wearineſs, faintneſs and difficulty of breathing, loſs of appetite, and a change of a horſe's natural colour, as from bay to
dun,

dun, or from black to a duskishness, and from white to an ashy complexion, and the like; his hair will shed with the least rubbing, and the pits of your fingers will remain wherever there is a swelling.

It is likewise to be observed, when a dropical horse lies down, he does not gather his limbs round together as a horse that is free from that indisposition, but because of their stiffness spreads them out at their full length.

Although purging to excess is sometimes the cause of this distemper, by reason it divests the blood of its spirituous and balsamic parts, yet, to attenuate the viscidities of its serum, and to make a discharge of what is superfluous, purging must again be made use of, and when that is performed with proper medicines, it is of no small moment in the cure; but these must be such as, besides their purging quality, are prepared so as to communicate warmth and vigour to the blood, &c. for which purpose the following is chiefly to be preferred:

Take of rhubarb, in powder, one ounce; gamboge and precipitated sulphur of antimony, of each two drachms; turbeth mineral, one drachm; gum guaiacum, half an ounce; with wheat flour and molasses make them into a ball.

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They must be repeated every other day; for a fortnight or longer; and on those days he does not purge, an ounce or six drachms of antimony may be given him; and because sweating is also of the greatest service when it can be promoted, the following ball may be given and repeated as often as there is occasion:

Take soap-pill, half an ounce; camphor and salt of hartshorn, of each half a drachm; make them into a ball for one dose, and wash it down with a quart of warm ale.

But if this proves insufficient to raise a sweat, he may be covered in a dunghill.

Some particular regard is also to be had to a horse's diet in this case; it would be inconvenient to feed him high; yet while he undergoes so much cleansing by purging, sweat, and other evacuations, his aliment should be somewhat proportioned to it, and therefore he should be allowed a quartern of clean oats every day, after the operation of his physic, with an ounce of the seeds of dwarf elder, and two ounces of caraway-seeds strewed among them.

SECT.

S E C T. XXVIII.

OF A HORSE THAT IS HIDE-BOUND.

WHEN a horse, after hard exercise or from an accident in being chilled, grows so lean, and his flesh so much sunk that his skin adheres close to his bones, he is then said to be hide-bound ; but this is not properly to be termed a disease, when it may be made up by feeding ; but when a horse after good keeping continues in the same condition, we may then very reasonably suppose him to lie under some inward indisposition, and in this respect it may proceed from divers causes, as when the excrements by dung and urine are over much increased, and the pores of the skin obstructed, or when the entrance into the lacteal or milky vessels are stuffed by adhesive gluey matter, or from any other augmented secretion, or any large discharge, whereby such a derivation is made as hinders the blood from reaching the extreme and outward parts ; for by that means the vessels and muscular fibres become contracted and shrunk to the bones for want of their due nourishment, and as the juices in those parts become also viscid, the skin is thereby as it were glued to the subjacent flesh.

And therefore, to form a right judgement of this distemper, the farrier ought to examine carefully both into the quantity and quality of what a horse voids from him; for we have known a hide-bound horse dung often, and his excrements soft like that of a cow, and yet not come directly to a lax or looseness; and we knew another very costive, but when he had a beginning glanders, which was the cause of his distemper, though in the process of the disease, that the matter came more plentifully, his skin grew very loose and thin, which is easy to be accounted for; and a horse may no doubt also become hide-bound from the other causes above-mentioned; and since this is properly an effect of some other disease, therefore whatever cures that, when it is once found out, will soon loosen a horse's hide; as for instance, when a horse voids too much dung, a stop is put thereunto with proper remedies, which astringe and dry up the belly; or when a horse stales too much, or if the passages of the chyle are obstructed, whatever carries off these obstructions, or puts a stop to the superfluous evacuation, will cause the blood to flow in greater quantity into the proper vessels, by which means the shrunk and depressed fibres will by degrees be extended to their usual dimensions; but if the farrier be at a loss to judge rightly in those cases, he can hardly do amiss if he administers the same remedies we have laid down for the cure of the yellows, for there are
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but few hide-bound horses which they will not recover, unless there be an inward decay and waste.

But while proper means are used inwardly, besides good dressing, fomentations may be used outwardly, such as are made of succory, harts-tongue, agrimony, St. John's wort, bay-leaves, balm, mint, penny-royal, rue, sage, rosemary, thyme, the roots of grafs-madder, eringo, or such of them as can easily be had; let twelve handfuls be boiled in two gallons of water, or lees of wine, and taking as many of the ingredients in your hand as you can grasp, rub all the body with it as hot as you are able to bear; after which take ointment of marsh-mallows, and oil of rue, of each equal parts; with these chafe his belly, and all about his throat and jaws, or wherever the hide is much shrunk, then cover him with an old sheet dipped in the liquor, being first wrung out, binding over all a warm quilt or rug.

This may be repeated for the space of three or four days, and it will help to draw the spirits and nourishment to the dry skin, though it will do but little service, unless the inward obstructions be also removed.

But as for a tired lean horse, who has no inward indisposition, we would never advise any one to tamper with him, otherwise than by observing a due care in his feeding, dressing, and exercise; for in this case, while we only suppose a horse's

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body shrunk and depressed by the continual discharges from the pores of the skin, and the other excretions during his daily and continued labour, and the want of sufficient food to make up those losses, it is very certain these may be repaired by food and ease; but as in this case the vessels are contracted and lessened in their size and capacity, his food ought at first to be but moderate, otherwise a larger quantity of blood will be transmitted into these vessels than they are capable at once to receive, which must needs be the occasion of many disorders, and will cause an over plenitude in the extreme parts, and so by its redundancy overburthen and load the principal bowels.

And this is truly the reason why lean and tired horses, who have been suddenly fattened by jockeys, become such jades, turn broken-winded or lame, or lose their eye-sight upon the least service; while the main study of those persons is (as every one sufficiently knows) only to make them look fat and plump, they soften all their food, that it may digest soon, and turn the sooner to blood, and allow them no manner of exercise, being sensible that any such method would soon turn to their own detriment.

But to apply this more particularly to our present purpose, a lean horse should have his exercise and food increased by degrees, and justly proportioned to the augmentation of his strength; and because of the contraction and want of capacity

city which we have observed to be in the blood-vessels of such horses, his exercise should always be given him so as he may rest some time before he has his feeding of oats; because exercise, by thinning the blood, and making it take up more space in the canals, may therefore, besides other injuries to which it exposes a lean hide-bound horse, cause more than ordinary sense of fulness, by distending the blood-vessels of the stomach, which are in that part very small, and therefore hurt digestion; whereas, if he be suffered to stand some time before an empty rack, or only to eat a little fresh hay, until the additional motion of the blood be decreased, and the vessels become subsided by a gradual running off of the blood, a horse will then become lightsome, and able to digest his food, so as it may be converted to true and solid nourishment. And for the same reasons, a horse in this condition ought never to be taken out soon after feeding, but upon necessity, and then he should only be walked gently, as every meal makes a fresh augmentation of the blood; and indeed at all times his exercise should be gentle and easy, until his vessels are rendered capacious, and strong enough to bear the sudden fallies of the blood, and that the offices of secretion have also acquired a sufficient aptitude to make their discharges as regular and as nearly proportionable as may be to the quantity of his food.

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And this must certainly be the true reason of fattening and hardening a lean hide-bound horse, or, in other words, of bringing a lean horse into good case, and at the same time rendering him robust and strong, and able to bear the hardest labour, especially if good rubbing and dressing, to promote the discharges of the skin, be frequently made use of.

But notwithstanding these rules are what we can warrant to be sufficiently agreeable to the laws of mechanism in all bodies whatsoever, yet, because the animal system is so much complicated whereby one horse also differs from another, every man's own discretion must therefore, in the main, guide him as to particulars. What we have here observed in general, has been chiefly calculated with an eye to those horses that are of a tender and delicate frame, and not to such as are naturally hardy, though these may also in some circumstances require such care to be had of them.

S E C T. XXIX.

OF THE FARCY, OR LEPROSY.

THERE is no distemper which has tried the skill and invention of farriers more than the farcy; the writers of the lower rank, as Markham

ham and De Grey, and those who have borrowed all their knowledge from them, have no otherwise accounted for it, than that it proceeds from corrupt blood, and that it is the most loathsome of all distempers, brought upon a horse by infection, or by eating unwholesome food, or by lying in swine's litter, and from such like causes; neither have those of better account mended the matter very much, having only amused their readers with a false and unintelligible philosophy.

The Sieur de Solleyfell defines it to be an ulcer caused by the corruption of the blood, and that by a certain poison which is more or less malignant, and consequently makes the horse's condition either hopeful or altogether desperate; and after a short theory built upon the writings of some physicians, but no way applicable to the farcy, he has these words:

“ For a brief explanation of the nature of that poison, it will be sufficient to tell you, that it is a venomous stream of certain corrupt spirits, which penetrate the parts of a horse's body, as the light of the sun passes through a glass; these spirits are a sort of ferment, that breed corruption in whatever part they attack.”

But this explanation is not only imperfect, but altogether unintelligible; his comparison being no way agreeable to his own ideas and notions of
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that poison, nor indeed deducible from those causes which he himself has enumerated as the chief occasion of the farcy; for he observes that it is sometimes communicated by contagion from an infected horse; the eating too great a quantity of new oats, or new hay; violent exercise in hot weather, and even once hard riding; hurts and wounds made by foul instruments, such as spurs, bits, &c. the too great abundance of blood, and preposterous and too hasty diligence in fattening tired, lean, and over-heated horses; but it is very certain none of these causes will produce such a poison as can penetrate the parts of a horse's body in the manner he has described; and indeed those poisons that are of the most volatile and corrosive nature, though their effects are sudden, yet their operations are perfectly mechanical, as may be seen by any one who is able to peruse Dr. Mead's Essays on Poison, where all those things are clearly and intelligibly explained.

We shall therefore endeavour to account for the farcy in a way that, we hope, will be thought more rational than what any of our authors have hitherto advanced; and whatever regard he had to the procatactic or remote causes of that distemper, we may venture to affirm that its immediate cause is a languid and heavy motion of the blood, and other juices contained in the small vessels of the extreme and outward parts of a horse's body,
and

and that it has its chief seat in the skin and fleshy pannicle.

But before we proceed farther, we shall take notice that most authors have divided the farcy into divers kinds, viz. the wet, the dry, the inward, the flying farcy, the corded farcy, the farcy that puts forth red or yellowish flesh, and that which is of a livid and black colour, resembling a hen's fundament.

The wet and the dry only differ as there is more or less moisture in the ulcers and parts where it is seated; the flying farcy, which makes its appearance sometimes in one place and sometimes in another; and the inward farcy, which is said only to be felt in the breast, but does not elevate the skin, and is observed often to disappear on a sudden, and become the immediate cause of sickness; though either of these may degenerate to a true farcy, yet while they are not fixed, but endued with properties altogether foreign to this terrible disorder, they cannot rightly be brought under that denomination, but ought rather to be looked upon as resembling those eruptions on the human body which happen in violent colds, or malignant disorders, and are curable as such; all the other kinds are only different effects of that which makes its first appearance like a knotted cord, and it is this sort alone which, properly speaking, constitutes a true farcy. In what manner such a disorder can happen to a

horse, and produce those effects we daily observe from it, shall be explained in this Section.

We have already taken notice that the farcy has its chief seat in the skin, and thin muscular pannicle which lies under it, and is caused when the juices in those parts become viscid, and consequently slow and languid in their motion. If it be considered that there are an infinite number of vessels in those parts that are smaller than hairs, and that those vessels, however small, have a capacity, and contain a fluid within them, any one may easily imagine, that, in the best health a horse can be in, that fluid can move but very slowly, but when it happens to be too thick or viscid, it may then be easily reduced to a state of stagnation; and when it is denied a free passage through those small canals, as it is constantly pressed upon by the succeeding fluid, those small vessels, where there is a stagnation, will be stretched beyond their usual dimension, and that place will be elevated and raised into a tumour.

As soon as any part is thus elevated, and the fluid stopped, that it cannot move forwards because of the obstructions and the compressions there are on all sides, the vessels being thereby filled beyond their capacity, it bursts forth; and being now got without the laws of circulation, putrifies, and, acquiring a corrosive malignant quality,

ty, it gnaws and festers until it has formed a convenient lodgement for itself.

If the stagnation be sudden and violent, and accompanied with great pain and heat, it will cause so great a derivation of blood towards the inflamed part, that the subjacent muscles will also be affected, and by that means the part will be raised into a large boil and impostumation; but when the pain and heat are moderate, it will probably pierce no deeper than the pannicle. Because the irritation made by those knots, or little tumours, is not of violence to affect and attract the blood in the larger vessels, yet as there is a near sympathy, and strict communication, at least between all the adjacent parts of the pannicle, any the least irritation will easily affect those that are nearest and the malady will be communicated by degrees from one part to another, until it spreads over the whole body; but because of the closeness of the skin to the pannicle, and the communication there is between them, the hide must also be affected; yet that intimacy and closeness is the cause, in so gentle an inflammation, that these knots do not rise equally in all parts, but chiefly follow the track of the veins; the humour therefore has a greater tendency towards the veins, as it finds a lodgement under them while they are full, and elevate the skin; and moreover, as the veins, being only filled with a liquid, are therefore soft and

yielding, and may be much easier pressed upon than a superior skin which is more hard and compact, and it is from hence a cord is always formed by the humours along the track of the vein, and as the swelling increases, it gathers strength, and sometimes surmounts the vein itself, so that the vein seems to lie under it.

We have shewn how the humours thus obstructed turn to matter, but the matter of the farcy is generally small in quantity, as the knots are formed in parts that are dry and adust, and where there is but little moisture; and as the vessels that nourish it are also but small, for this cause, when the cure happens to be ill managed, the ulcers degenerate into a caries, and put forth a sort of flesh which is red, white, or yellowish, according to the predominancy of the humours, or grow hard and schirrous, and of a livid colour; and when the lips of the ulcers become inverted, which happens frequently from the acrimony and sharpness of the matter, or the frequent application of hot or unctuous things, they are then said to resemble a hen's fundament.

But all this is reconcileable to what we have laid down as the immediate cause of the farcy, it is owing to a lentor in the blood and juices, whereby they move heavily; but especially in the extreme and outward parts, where the vessels are the smallest; and it is very certain that any or most of those causes, to which Solleyfell and the best farriers have ascribed the farcy, will produce
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such a lentor and flowness; or if there be a previous lentor in the blood, it must increase that lentor, either in whole or in part, by exciting pain; and this is plain from the instance of the disorder being caused by a rusty spur, which can act no otherwise as a poison, than that some of the harsh and pointed parts of the rust fret and irritate the tender wounded pannicle, and even then it must act mechanically, and in the way we have above described, by retarding the motion of the juices in those parts; and if previous to such a wound there be a very great visciduity and thickness of the juices, the farcy may be caused by the wound of a spur, or any other instrument, though it be altogether free from rust.

If this disease be caused by infection from another horse, it must act in the same manner, for then we must suppose that some effluvia or poisonous streams fly off from the diseased horse, which, by insinuating themselves into the pores of a sound horse, must occasion a stagnation of the juices in those outward parts; but these effluvia are not of so volatile a nature, as to have often such effects; but when horses stand together in a stable, it is rather to be attributed to their eating the same kind of food, and their being under the same direction and management. What kind of poison may be in swine's litter, or how far it may be noxious to horses, is not worth while here to determine, since it is very seldom made
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use of to horses; and if it was, it would rather produce the mange than farcy.

The eating corrupt and unwholesome hay or oats may bring on this disease, as such feeding causes crudities, which must render the blood viscid; for when the blood has once acquired that quality, a stagnation may be induced in the extreme and outward parts, where the juices are naturally viscid, and the vessels very small.

Too much feeding without suitable exercise, may also be the cause of a farcy, as it may induce a gradual plethora, or fulness of the vessels; but if that be by a sudden adstriction of the pores, it will be more apt to cause a fever or surfeit, or a foundering in the body, which in many cases is not to be distinguished from a surfeit; and the same effects may also be produced from hard labour, and from many other errors in the using and management of horses. We shall now take notice of the signs, but shall only distinguish between those which are said to be good, and those which are of ill prognostication.

That sort of farcy which is said to be easily cured, takes its rise upon the head and upper parts; the reason is, because it can have no deep root; but if it once comes to affect the emunctories and kernels about the jaws, and towards the ears, it is then to be feared, and if neglected will be apt to breed the glanders. That kind of farcy which is superficial, and where the hide is

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only affected, cannot be of dangerous consequence, even though it be universal, and has over-spread the whole body; but when it has been originally seated in the pannicle, or if it be observed to grow deeper, and affect the pannicle, it may be then looked upon to be more difficult and obstinate, though even then it will not be very hard to remove, unless it either affect the glandulous and kernelly parts, or that the knots break or degenerate into a caries or scirrhus. But the most superficial and least-rooted farcy, if it continues long without abatement, may insensibly and by degrees become of ill consequence, as it disturbs the offices of secretion; for while the humours have a continual tendency towards the knots and sores, the pores of the skin become obstructed, and for the want of a due and regular discharge there, the least error in feeding and exercise will cause inward disorders; wherefore we may often observe horses that have the farcy turn also broken-winded and consumptive, and sometimes become liable to the yellows, and to many other infirmities, which either render them altogether incurable, or at least make the cure very difficult.

When the farcy begins on the extreme and most dependent parts, or if in the process of the disease the humours fall downwards upon the limbs, it is in this case very difficult to be removed, as it is generally attended with the grease;
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but reason will be shewn in the theory of that distemper, and a competent knowledge of the structure and mechanism of a horse will easily enable any one to distinguish in other circumstances. We shall therefore now go upon a method to cure this disease.

The farrier ought, in the first place, to look unto the state and condition of the horse, for if he be fat and lusty when the distemper seizes him, in that case, his diet should be somewhat abated; but if it be otherwise, that the horse is lean and out of heart, and that he has not had sufficient nourishment, or that his labour has been beyond his strength and feeding, his diet ought to be somewhat augmented; for as too great a plenitude and fulness of the vessels is oftentimes the occasion of that lentor and slowness of the juices which brings on a farcy, the same effects are sometimes produced by poorness, because in that case, the blood being divested of its spirits, becomes languid and sluggish, and consequently is rendered more apt to obstruction in the extreme parts where the vessels are the smallest, as we have taken notice of in another place.

Therefore, it will appear also to be founded upon reason, what Solleysell says he has experienced from frequent trial and observation, that purging is of no great service, but oftentimes a great detriment to horses in the farcy. This is so plain in case of a horse that is low in flesh, that
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it needs no manner of proof, and can only be admitted of in such circumstances as makes it unavoidable when there happens to be an extreme costiveness, and then laxative clysters are the most eligible; but on the other hand, when a horse is fat and full bodied, though purging must in that case do him less hurt, and may be complied with in moderation, yet it is no way suited to make a perfect cure of the disease, but has been the ruin of many horses in the hands of ignorant smiths, who know no method of carrying off diseases, but by repeated purgations. The discharges made that way being the most apparent to the outward senses, and the most agreeable to those who are able to frame no other ideas of a diseased horse, than by imagining his blood to be full of corruption, and that the medicines they use have some elective property to drain that off with the dung.

A more warrantable experience has sufficiently taught us, that in all purgations the good must be drained away with the bad; they are therefore seldom profitable but rather hurtful in foulnesses of the skin and outward parts; but those things can only be successful which work more immediately upon the blood and humours, by changing their contexture and rendering them thin enough for their excrementitious parts to go off by the nearest and most proper outlets; and it is plainly evident, the medicines hitherto found the

most effectual for the cure of the farcy, have been endued with such properties:

That we may proceed methodically, if a horse be plethoric and full bodied, such a habit may doubtless be an incumbrance to nature; in which case, there will be pain and inflammation in the knots and tumours, and yet the matter may not rightly be disposed to come to a laudable digestion when these symptoms are observable; the cure may be begun by taking a small quantity of blood from the neck, but that ought not to be repeated, unless some urgent circumstance should require it.

After bleeding, moderate purging may be once or twice complied with, especially with one or either of the following prescriptions, which we have in a more particular manner suited to the nature of the farcy:

Take jalap and aloes in powder, of each half an ounce; ginger, two ounces; mercurius dulcis, three drachms; oil of caraways, two drachms; with a sufficient quantity of molasses make it into a ball.

This is so mild, that it may be given almost to any horse; the following is somewhat stronger:

Take gum guaiacum, myrrh, and aloes, in powder, of each one ounce; snake-root, half an ounce; ginger, one ounce and a half; oil of caraways,

two

two drachms; with any fyrup form it into a ball.

No purging medicine can be better suited to the nature of the farcy.

Either of these may be given according to the strength and ability of the horse, observing always that he drink nothing but warm water and oatmeal, until the phyfic is quite gone out of his body; if he be purged three times, there it should be about five days between each dose. After purging, if you find the knots and little tumours ripen, you need only give the horse half an ounce of Venice treacle or mithridate, or an ounce of London treacle, twice a day, in a pint of ale or white-wine, and this may be repeated every day until the matter is all discharged; or if they terminate in dry horny excrescences, like warts, which sometimes happens, it may be repeated after the worst symptoms are over (viz. the swelling and inflammation about the roots) every other day only; and when the skin becomes so well fortified, and the excrescences so much disengaged from it, that they begin to fall off in the dressing, or that you can bring them off with your nails, without hurting him, you may then leave off the use of medicines, and put a period to the cure by giving your horse due exercise.

If the obstructions be of long standing, and there is a very ill disposition in all the parts

where the distemper is seated, and that the sores and ulcers begin to have a bad tendency, then recourse must be had to those medicines which are endued with the qualities above mentioned; and first of all, we shall begin with such as are the most simple and easy to be had; and here it will be proper to observe, that antimony given to a horse among his corn, will sometimes cure the farcy, yet it will not always do to trust to exercise and antimony for a cure of this disease (after physicking) because sometimes it has proved unsuccessful; but that may not be the fault of the medicine, but the keeper, who ought, while the horse is under a course of antimony, to give him daily but moderate exercise, and likewise moderate feeding.

Therefore, when you give your horse antimony for the farcy, let the dose be two ounces, which may be mingled with his oats, and about an hour after, let him be walked abroad for the space of an hour, or an hour and a half, and be very well rubbed when he is brought into the stable; but the comb must be sparingly used to a horse that has the farcy upon him, because of rankling the sores; after his dressing, clothe him moderately warm.

If the antimony opens his belly, it will then lose much of its virtue, and the horse will become weak; in that case you may give it in balls, made of Venice treacle or London treacle, with a small
quantity

quantity of flour to bring the mixture into a fit consistency; continue to give it in this manner till the looseness abates.

If it be frosty weather, his water should be sometimes warmed and strewed with oat-meal, or at least it ought to be set sometimes before the fire, because excessive cold water will chill the body of a horse which is kept in more than ordinary heat during the operation of the antimony; but antimony may be given more profitably in the following manner:

Take equal quantities of antimony and sea-salt, place them in a crucible, and flux them one hour; let it cool, then break the crucible, and break the scoria; afterwards rub the regulus down with the same weight of quicksilver, till it is all in fine powder; to which add gum guaiacum, an equal quantity; mix them very well together for use.

Two ounces of this alterative powder, made up into a ball or paste, with a sufficient quantity of honey, and given every other day to your horse, will soon cure him of the most inveterate farcy, unless any uncommon accident should happen, or that the horse be broken-winded, or labours under some other inward imperfection.]

The following drink by all means should be given in this disease, and no doubt with very good success;

success ; but then it is not once or twice will do the business, but it must be continued a considerable time :

Take mezercon-root, cut into thin slices, one pound ; guaiacum and saffra-chips, of each three pounds ; boil them in six gallons of water to four gallons ; towards the end of boiling, add a pound of liquorice-root sliced, then strain it for use.

After each ball, give your horse two quarts of this liquor every morning, and the same quantity towards evening, or oftener, warm.

We have seen a great many prescriptions, which have been somewhat of the same nature, for the cure of the farcy ; but the owners of them, for the most part, boiled their ingredients in ale or beer, and gave it once or twice only ; and if the drink did not answer the end, they were then greatly disappointed ; but as all those things have their operation chiefly in the glands and small vessels, a considerable time must be allowed before their efficacy can be much felt ; and if they answer the end in two or three months, it is as much as can be expected from them.

Solleyfell recommends the use of guaiacum, saffra, and saraparilla, two ounces of each, made into a gross powder, for three doses ; which (he says)

lays) is a specific, and by a continued use, infallibly cures the farcy.

The roots of Solomon's-seal, white-mullein, and queen of the meadow, stand also recommended by him for the same purpose; but any or all of them must come far short of our prescriptions.

There are infinite remedies to be met with in the books of farriers, many of which are affirmed to cure the farcy infallibly, but as there are but few of them which are not overloaded with a number of useless ingredients, and as those which are the most adapted to that distemper are but trifling and insignificant, we have thought fit not to trouble the reader with them; looking upon the prescriptions we have already laid down, to be sufficient to answer all that can be proposed, so far as inward medicines can be servicable; and if these be complied with in due time, the farcy will never have that tendency to inflame the glandulous parts, and to fall into boils and swellings about the sheath and belly; neither will it degenerate to grease, as it often happens when improper methods are taken.

As to those cures which are said to be performed by putting the juice of rue, beets, and other pot-herbs, bay-salt, hemlock, henbane, and the like; and those which are constantly boasted of, by tying insignificant things to a horse's mane or tail,
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we believe no judicious person will give much more credit to them, than we are willing to do; there being very little to be said in regard to the first, and the last being monstrously ridiculous. But any of these may succeed, if to them be added daily exercise; and we have been witness to such like cures, in a very moderate and beginning farcy; but then it was not the application, but the exercise; and nothing is more common among some country people, than to bleed a horse in this disorder, and send him immediately to plow, and while the exercise is truly the cause of the cure, they generally attribute it to the smell of the earth; and agreeable to this is what we find in De Grey, in his Second Book, Chap. ix. towards the latter end of the first Section, where, after a great number of insignificant recipes, he has these words:

“ But now I will give you, for a close, the best and most certain cure for this disease that I ever yet knew, and with which I have perfected more rare cures of this nature, than of all the residue before inculcated, and thus it is:

“ Take of rue, the tender tops, and leaves only, without any the least stalks, a good handful; first chop them small, and then stamp them in a mortar to a very ointment; when they are so
well

well pounded, put thereunto of the purest white tried hog's grease, one spoonful, and so work them together to a perfect salve or ointment; that done, stop into either ear this whole quantity, by equal portions, and put a little wool upon the medicines, to make it keep in the better; let him remain in the stable four-and-twenty hours, at least; then take out the wool and either put him to grafs, or work him; for the more his labour is, and the more spare his diet, the sooner he will be cured.

" This I recommend to you for the best and most certain cure that I could ever meet with, for with this receipt only, I assure you, on my credit, I have cured more than one hundred horses; many of which were, by other farriers, deemed incurable, and sentenced to be food for hounds."

It is very plain, all that rue can do, when used in this manner, is but little, especially in the space of twenty-four hours; for it is demonstrable from the nature of the farcy, as it is a disease brought on by length of time, so it must, of consequence, require time to its removal; and in all chronical diseases, and ill-habits, it is the same; and therefore what this author has applied to the rue, was only owing to the exercise, though we cannot approve of this method of keeping a horse to hard labour, and a very spare diet too, that being di-

rectly contrary to the nature of all animal bodies whatever, which must be enabled to do their work by food; and we are truly of opinion, no horse was ever yet cured, where this rule was strictly put in practice; but how far he may be indulged in feeding, while the farcy is upon him, any one with a little care and observation may, in some measure, be a judge. What relates to putting rue, and other pungent and stimulating medicines, within the ears of a horse for sudden disorders of the head, has been already spoken of, where we treated of the staggers, to which we refer the reader. We shall therefore go on to the remaining part of the cure, which chiefly concerns the applications made externally.

If due and proper care was taken in the beginning of the farcy, there would be little need of outward means, otherwise than by washing the fores with aqua vitæ, brandy, wine, or urine, and such like things.

The frequent mismanagement which horses have been exposed to in this distemper, has rendered both the disease and the cure the most complicated and perplexed of any that are to be met with in the whole system of diseases; inasmuch that there is scarcely an herb, or plant, but what has been internally used; and outwardly, there is no poison, natural or artificial, that has not had some share, either in killing or curing horses who
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have lain under this malady ; but out of those, we shall endeavour to make the best choice, neither shall we use them promiscuously, and at a venture, as has been hitherto done by most practitioners ; but by making the proper distinctions, suit them, as near as can be, to the variety and difference which is most observable in the knots and ulcers ; but in some kinds of farcy, the skin is but little, if at all, elevated ; only a viscus matter transudes, passes through the pores, and hardens like corns ; this sort we have observed not to be very difficult, but may be cured chiefly by internals, as they are but small, and accompanied with little or no inflammation ; yet, when they continue long, there will be a matter gathered beneath them ; the best way is to anoint them with oil of bays, with a moderate quantity of quicksilver, and they will soon fall off.

When the disease makes its appearance in tumours that elevate the skin, if they continue small they will probably end as the other ; therefore the farrier ought not to be too busy to ripen them, but leave them, as much as can be, to nature ; for that kind of matter very often finds a passage for itself through the pores of the skin, and what is not turned to matter, is washed back again with the reflux blood.

Knots and tumours are sometimes so disposed, that without coming to a laudible digestion, they

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grow

grow fungous and open like a sponge, and transmit a great deal of viscid matter through an infinite number of little holes and interstices in that loose substance. This is a bad sort of the disease, and is apt to degenerate into fores; but the best way to manage in this case, and prevent its having an ill tendency, is to dress them with the following ointment :

Take turpentine, eight ounces ; quicksilver, four ounces ; calamine, prepared, one ounce ; rub the mercury and turpentine together, till they are well mixed, then add the calamine, and make it into an ointment for use.

Spread this upon pledgets of tow, and apply them upon the fores.

The turpentine will draw out the superfluous moisture, and the quicksilver will keep the excrescences asunder.

This is a most excellent remedy, and much preferable to any thing else ever invented ; and will seldom or never fail making a perfect cure, if it be made use of in time, and the fores dressed with it once a day, or once every other day.

The most common and ordinary case is, where the knots rise pretty high, and are painful to the touch, but at the same time give no signs of their coming to digestion ; while they continue so, let the
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the horse have daily the antimonial balls, whereby the matter which forms the cords and knots may thereby be attenuated, so as it may be carried along with the current, or may find a passage through the pores; for it is every one's business, as much as may be, to avoid their breaking and turning to ulcers.

The endeavouring unskilfully to digest and break those blind and dry knots, which of themselves have no tendency to ripen and turn to matter, is the reason why they so often degenerate into indurated and hard excrescences, which we daily observe are so difficult to be removed; therefore, while the proper means are used inwardly, which must never be neglected till the disease is quite conquered and overcome, outwardly may be made use of the camphorated spirit:

Take spirit of wine, rectified, one quart; dissolve three ounces, or as much camphor as the spirit will take up, with which wash the knots very often.

If the knots grow soft, and yield to the impression of your finger, in this case they ought to be opened as soon as they come to maturity, especially those that are the largest, to prevent the matter returning into the blood. Although a small quantity of matter taken up, and washed back into the veins with the reflux blood, may be
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of no ill consequence, yet when there happens to be much of it, and that its discharge is prevented by the thickness of the skin, as is pretty usual to horses, it is not unlikely that the matter, when it returns in this manner, may, by its acrimony and sharpness, abrade the small vessels, and thereby cause fresh eruptions on other parts of the skin; or if that does not happen its stay and continuance may cause a very ill disposition of the part, especially in those tumours and knots that are seated near the glands and kernels. There are various ways of opening those little tumours; some farriers prick them with an awl, a large needle, or other sharp instrument; some pierce them with a small iron, rod-hot, and somewhat rounded at the end; but many of our common farriers pull out the knots with pincers; and there are some who use no other method of killing the farcy, as they often term it, than by giving the fire.

No doubt all these methods may be practised in this disorder in some particular circumstances; but the way of treating those tumours ought to be suited to their various dispositions. While they are nothing but small pustules, full of matter, neither the fire nor hot iron is necessary; but a sharp instrument with a keen edge, particularly a lancet, or incision knife; neither should they be pierced or bored, and then have tents thrust

thrust into them ; but the orifice made large enough to discharge the matter, for the most simple sore may easily be changed to an ill-disposed ulcer by the use of tents.

If the sores have no bad tendency, they need only be dressed with warm turpentine, common tar, or the prescription before mentioned, keeping your horse covered with a sheet ; and if they be sometimes washed with warm brandy, or spirit of wine, it would be very proper.

This method will be sufficient to cure all those knots that are of a moderate size, and easily ripen ; but when there happens to be some that are pretty large, and can neither be discolled nor brought to matter, in that case, if they were to be cut with a sharp cold instrument, there probably would nothing issue out but blood, and the wound would soon close again ; therefore to them a hot knife, or a hot iron, is the most proper ; but then the farrier should know very well upon what grounds he meddles with them.

We shall now consider the farcy in its more advanced state, viz. when it becomes attended with ill accidents ; to understand it properly the farrier ought to be pretty well instructed in the art of surgery ; for, as we have already observed, the most simple knots and tumours may, when they are ill managed, degenerate into ulcers ; we find this to be true by daily experience ; for there is scarcely

scarcely an ulcer or preternatural excrescence of any kind, which can grow out upon an animal body, but what is often the effect of this distemper, and proceeds chiefly, as we have also taken notice, from the want of proper medicines internally; or even when the medicines, though well adapted, have not been continued long enough to do their business. The compelling nature in bringing those to suppuration and matter, which, in themselves, have no tendency to it; the inducing a bad disposition into the sores and ulcers by the application of fat greasy medicines, and inclosing of foreign bodies within them, as tents made of the pith of elder, and other spongy things, and even those of flax; the injudicious application of hot, caustic, and corrosive medicines, and of the fire itself, the exposing the sores to the sharp air, and a great many other such like errors—

That all these things may be made as easy and intelligible as possible, we shall reduce the whole method of cure in those obstinate cases to three principal intentions. The first is the cleansing the ulcers from foulness; the second, to suppress a luxuriance and false growth of flesh; and the third, to destroy any such excrescences when grown; and in this last, there are also several intentions, as we shall shew hereafter. As to the first, if the farcy knots have been opened, and are degenerated

degenerated into foul ulcers, if these are not deep, and their lips grown callous and hard; the unguentum *Ægyptiacum*, made chiefly of honey and verdegris, which is sufficiently in the acquaintance of all farriers, will for the most part answer that end, or the ointment made of quicksilver and turpentine, as before prescribed, or basilicon mixed with red precipitate, in the following manner:

Take red precipitate, half an ounce; rub it in a smooth mortar, until its shining particles are destroyed; then mix it very well with two ounces of basilicon, to dress the fore.

The precipitate is a most excellent medicine when it is thus prepared, but in the way the farriers use it, it seldom succeeds, because they apply it in a rough gross powder, as it comes from the laboratory of the chymists; and that also in a very large quantity, which instead of bringing an ulcer into a good disposition, makes the fore rankle and become ten times worse. We know this is also practised by some surgeons, and one of considerable name and practice approved of it in our hearing, though we must needs say, it is contrary to our frequent experience; and it is likewise contrary to the true intention of that medicine, which is only to cause a purer digestion by insinuating its finer and more subtile parts into the little canals and pipes, thereby forcing

through their obstructions; whereas, when it is applied in a gross powder, as it is endued with many sharp points, it only increases the influx of matter by wounding those tender fibres, and thereby causes a greater derivation of humours with the most exquisite pain to them, which ought to be avoided by every good surgeon and farrier; but those who love to see a great quantity of matter follow their dressings, may have their expectation very nearly answered by the application of glass powder, the sand of an hour-glass, or any thing else that is sharp-pointed or cutting; but in some instances a milder medicine than levigated precipitate may even be used, as the dulcified or sweet mercury, made into powder in the same manner as the former, and it will answer the end with equal success. As soon as they become clean and smooth at bottom, and begin to fill up, they need only be dressed with honey mixed with spirit of wine, which will both cleanse and heal them; or, to make the dressing sit on the better, it may have turpentine added to it.

The second intention, or the suppressing and keeping down proud and fungous flesh, may be done by the use of gentle caustic medicines, as washing the sores with blue, green, or white vitriol-water, but the blue is the strongest, and may be made by putting an ounce of Roman vitriol to a pint of fair water, and letting it stand till it is all dissolved. The way of applying this is by
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dipping tow into the solution, and when you have squeezed out the moisture, apply it as dry as may be to the ulcers; and if bandage can be conveniently applied over them, it will restrain the growth of proud flesh, unless the horse be inwardly disordered, which must be carefully regarded, that your applications may be suited accordingly.

If the proud flesh rises very fast, you may apply the powder of blue vitriol alone, and if the part will not admit of bandage, you are to supply the want of it as much as you can by applying dry lint over the powder to a pretty good thickness, and above that a plaster of Burgundy-pitch, or some other plaster that will stick very fast; and if you can inclose a thin plate of lead wrapped up in the flax, it will be very convenient, because the weight and pressure upon the part will very much contribute to this intention.

There are many other medicines of this kind that may be used with success, as the vitriol-water prescribed for rheums in the eyes, and likewise the blue-water, and the solution of the lapis mirabilis out of Solleysell, or the powder of the said stone, all which may be seen in their proper places, and many other things may likewise be met with in the books of the best farriers, which may be used in the like case, which we shall hereafter insert; we shall therefore proceed to the last intention, which was mentioned in the cure of the farcy, viz. by laying down a proper method

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whereby

whereby to destroy all manner of excrescences, which have either been occasioned by ill management, or have baffled the common or ordinary means used to prevent them; and herein we have undertaken a very hard and difficult task; and such as those pieces of imperfect flesh, which we have observed to shoot forth from the little ulcers in various aspects, some resembling a hen's fundament, and some (as is not uncommon to excrescences of that kind) having no distinct resemblance to any thing in nature, but as they all agree in their compactness and solidity, whereby they have seldom any great tendency to waste after they have once acquired such a disposition; the method proposed in this intention may therefore be put in practice, so as they may be altogether rooted out, and this is to be done either by cutting or burning, or both, according as different circumstances may require.

The knife is the most expeditious in all cases where they are loose, and not firmly seated with a large adhesion to the flesh; and when they lie off from the larger vessels, applying afterwards some cicatrizing medicine; but this method cannot be observed with respect to the whole, but only to those which by accident put forth in such a manner, and therefore burning medicines or the fire itself, may also be used.

It ought carefully to be taken notice of, that in all cases where medicines are to be applied,
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whose immediate operation consists in consuming the part to which they are laid, if the disease be universal, and spread over divers parts of the body, at once, as that under our present consideration, those of the mildest operation are first to be complied with, and that they may the more easily take effect, the parts ought to be rubbed till they become somewhat raw, or be gently scarified with a fleam.

Secondly, If recourse must be had to more powerful medicines, or to the use of fire, as is necessary in obstinate cases, and if there be a vast number of excrescences to be destroyed, and these seated in divers parts of the body, you ought not to attack them all at once, but by degrees bring some to digestion and matter, before you begin with others; for the communicating too great a heat to divers parts of the body at once, as must happen from strong caustic medicines, or actual fire, will either destroy your horse by throwing him into violent and sudden disorders, or at least create a bad disposition, which, instead of making a cure, will render him much worse, as may be easily demonstrated.

Thirdly, The situation of the parts is also very much regarded in this intention; and all such harsh applications ought to be gently and sparingly used to the limbs and dependent parts, and likewise to the sheath and other soft parts, to the
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region of the heart and kidneys, &c. and when they have been applied, the venom ought to be taken out of them with all possible expedition, by scarifying the burnt flesh, and using such dressings as are able to keep down an increasing inflammation, and bring them suddenly to matter.

Lastly, While these operations are performed, a more than ordinary care ought to be taken in a horse's feeding, and if he be perceived to lose his appetite, as that is a sign they have been carried to the height of his strength, a seasonable stop ought therefore to be put to them, and he should be continued to a middling diet, gentle but daily exercise; and sometimes opening and laxative clysters may be exhibited during the whole course of such applications.

A certain author says, the farriers his old masters took white precipitate, or corrosive sublimate of mercury, and after opening the knots, they put a small quantity into each, which in a short time made them fall off; but it ought to be very cautiously used, otherwise it will cause very dangerous swellings on the limbs, and kernels about the throat, as in an instance we saw not long ago, but this caution is hardly necessary to the country farriers, who seldom call for it by the name of corrosive sublimate, as we have taken notice several times, so that the apothecaries give them mercurius dulcis instead of it, which, although it does not form
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any thing like an eschar, though they pepper them very soundly with it, yet it is not always attended with success.

The following is from Solleysell; he calls it the ointment of Naples, having had it communicated to him by a Neapolitan groom, after he had seen many surprizing cures performed by it; but although it has been used with success in every state of the farcy, according to that author, yet it is more peculiarly adapted to destroy excrescences, as it is made up of ingredients that are altogether caustic and somewhat stronger than that which we have before inserted.

Take corrosive sublimate, arsenic, and euphorbium, of each an ounce; make them into a fine powder, and with a sufficient quantity of hogslard make a soft ointment for use.

Keep the ointment in a glazed pot, and when you have occasion to use it, open the knots or swellings with a lancet, and put into the hole a little cotton, dipped in this ointment, without heating in the least; the next day, if you perceive it is fallen away, you must put in a little cotton with some fresh ointment; but if it sticks, one application will suffice.

These may be made stronger, or weaker, according as you mix them with a greater or lesser quantity of ointment, and may be diversified by changing one ingredient for another, providing you

you keep a sufficient quantity of those that are caustic.

Any of these ingredients used dry, will yet be of more sudden efficacy; unslacked lime, or the capital sope-leys, evaporated to a dryness, will have the same effect; or the lunar caustic, so much in the acquaintance of surgeons; and, in fine, all things that are plentifully saturated with fire. But in the farcy, they ought to be guarded, and made more moderate, as in the manner before prescribed; neither is the actual cautery, or fire, to be applied otherwise than an auxiliary, and to assist in other intentions, viz. to keep down a luxuriant and fresh growth of proud-flesh, after the knife, or the more gentle caustics.

S E C T. XXX.

OF THE MANGE.

THE distemper we have treated of in the preceding Section, has its chief seat in the skin and fleshy pannicle; nevertheless that which comes under our immediate consideration, is yet more superficial, being principally seated on the surface of the skin only, and scarfskin; therefore as the mange is thus circumstanced, it is seldom attended with pain or inflammation, but only with an intolerable itching; that thin membranous

branous tegument, not being endued with any tender sensation, as has been observed in the beginning of the anatomical part; but yet if a horse has been ill-managed, or that the distemper has been long standing, it is then apt to degenerate from what it was at first, and taking deeper root, it causes boils and sores, which often have a very ill tendency.

The cause is from too great a quantity of viscid serum, bred in the bodies of horses by corrupt and foul feeding, as the eating of grains, a too frequent use of hot mashes, want of due exercise, and the want of good currying, especially to a horse that has been used to it; for, by that means, the pores become obstructed, and the ferocities of the blood are thereby accumulated in the small vessels of the skin; sometimes it proceeds from want of food and due nourishment, whereby the blood being depauperated, is rendered unable to reach the passages of the skin, to make a secretion there, so that its ferous parts being detained in the small vessels, grow corrosive, and break through the skin, and sometimes it is caused by infection from other horses.

The signs are the falling off of the hair, especially about the loins and hams, and from most or all of the joints, according as the distemper is more or less prevalent; sometimes from the head and neck, but very frequently from the rump; the skin in

these parts, by reason of the heat and corrosiveness of the matter, turns thick, hard, and sometimes cruſted like that of an elephant, from whence ſeveral farriers have termed it the elephantine malady.

As to the cure, moſt farriers lay a great ſtreſs in bleeding, inſomuch that they drain away blood from ſeveral parts of the body at once, viz. from the neck, the plate veins, the tail, and ſometimes from the flanks; and all this from a firm but ignorant conceit, that in the mange the blood is full of corruption; which, upon examining what has been already ſaid, will be found a ridiculous practice, and very pernicious, eſpecially to thoſe horſes that are low and out of heart; as nothing ſo often makes the diſeaſe degenerate into an ill habit, which may eaſily be followed by boils and ulcers, as it weakens the whole body, and thereby adds to that which is the cauſe of the diſtemper.

Therefore all that can be propoſed by bleeding, is to leſſen the quantity thereof, when it happens to be redundant in a horſe, in order to give a freer paſſage and circulation to the juices in the extreme parts, that the ſecretions of the ſkin may be duly performed, and this we judge very neceſſary; after once bleeding, the following drench may be given:

Take jalap, in powder, an ounce and a half; ſal polychreſt, and cream of tartar, of each one ounce;

ounce; caraway-seeds and aniseeds of each an ounce and a half, in powder; mix them in a quart of warm water for one dose.

Or,

Take fenna, three ounces; boil it in two quarts of water to one quart, then strain it, and add jalap and cream of tartar, of each an ounce; and buckthorn syrup two ounces.

Either of these may be given, with the usual precautions, but they should not be often repeated; for purging is no otherwise necessary for the cure of the itch than bleeding, and only gives it a gentle help when rightly used, as it cools and refreshes a plethoric and full-bodied horse.

After these things recourse must be had to outward applications, for it is these alone that must give the finishing stroke to it, as the distemper is seated outwardly and not deep-rooted; for that purpose, nothing has ever been found more effectual than sulphur, for which it bears the test of all ages, and if it sometimes proves otherwise, it is altogether owing to the ill management of it, or the other preposterous methods that are made use of along with it; the following will kill any mange in the beginning:

Y y 2

Take

Take flour of brimstone, elecampane-root, and white-hellebore, all in fine powder, of each six ounces ; black-pepper, powdered, and oil of tartar, of each one ounce and a half ; strong mercurial ointment, six ounces ; hogs-lard, three pounds ; mix them well together into a soft ointment.

Or,

Take white precipitate, half a pound ; hogs-lard, six pounds ; essence of lemons, one ounce ; mix for an ointment.

Or,

Take camphor, two ounces ; let it be rubbed down with a sufficient quantity of sweet oil ; then add white-hellebore, six ounces ; flowers of sulphur, one pound ; mix them well together with a sufficient quantity of hogs-lard to form a soft ointment. The camphor makes this ointment much more resolving and discutient than the one before it.

Either of these being rubbed upon the parts once in twenty-four hours, will kill the mange in a few days ; neither will it be necessary to fret the skin to a rawness ; for, instead of doing good, that method proves more frequently prejudicial, as it excites much pain, whereby a too great derivation

tion of the humours is caused towards the infected parts, which is the reason why even the best farriers are obliged to have recourse to caustic medicines, the disease being grown too powerful to be destroyed by those of a milder operation. The use of coperas-water, and alum-water, is likewise prejudicial in most cases, as we have often observed; all that these can contribute towards the cure of the mange, is only by allaying the heat and itching, in which they sometimes succeed; yet as they obstruct the pores very much by hardening the skin, they make it liable to crack, often rendering those parts subject to fresh heat and inflammation, by which it degenerates to ulcers and boils. The best way therefore is only to rub the mangy places gently, with a woollen cloth, to produce a moderate heat in the part, by which means the sulphurs will penetrate through the pores, into the small canals and vessels, with greater certainty than when they are daubed upon places that are raw or incrusted.

This is the true method of curing the mange.

Some make a mixture of quicksilver and brimstone, together with an addition of foot and black-sope, which in some moist and watery cases may be useful.

Others use arsenic, quicksilver, and some burning caustic remedies; but these ought never to be meddled with, except in very extraordinary de-
generate

generate circumstances, and when there happens to be excrescences that are dead, and without sense, which can by no means be brought to yield to milder methods; but in an inveterate mange, it will be of the greatest service to give your horse the remedies as prescribed in the section of the farcy.

S E C T. XXXI.

OF TUMOURS, IMPOSTUMES, AND ABSCESES,

BY a tumour is meant the elevation, rising, or protuberance, of some part of the animal body into a preternatural swelling; in what manner that comes to pass has been, in some measure, shewn in a former section; where we have taken notice, that as often as the blood or juices happen to be very much obstructed in the small vessels of any part, that part will be stretched out beyond its usual dimensions, especially as there is a perpetual influx and succession of the same fluid from the circulation; to which we shall add, that these obstructions are caused either by the quantity or quality of the said fluid, whereby it presses and stretches out one part more than another;

another; or when any part happens to be hurt or weakened by external accidents, whence, being unable to make any equal resistance with the rest of the body, it will at length receive such a quantity of fluid as will raise it into a tumour.

The learned authors on surgery, in all ages, carefully following one another's steps, have reduced all tumours to four general kinds, viz. the natural, encysted, critical, and malignant; and under these they have ranked all the other species. But this division is neither in itself very accurate, nor rightly suited to our purpose; as our business is with horses, we shall therefore reduce them to the natural and encysted only:

Of the first of these, are all kinds of boils and inflamed swellings, and, in short, whatever tumours are formed originally by the fluids distending their proper vessels, whether they be critical or malignant, for these differ only in degree from other natural tumours.

And of the second, are all those that are formed within membranous cysts or bags, as wens, anburies, and some other sorts which are called figs, and other excrescences that grow on the external parts of the bodies of horses; and this agrees the best with what those authors have observed, with respect to the formation of all tumours, by fluxion and congestion. Those tumours that are large,
come

cometo a suppuration, and have matter gathered within them, whether they be natural or encysted, are termed *impostumes*; and when the matter is lodged within the common, but chiefly the largest interstices of the body, as those furrows or vacant spaces between the muscles, or between the muscles and bones, they are then called *abscesses*; but all abscesses, and most kinds of impostumes, are formed of natural tumours.

We shall consider all tumours, whether natural or encysted, in the following order, viz.

First, With regard to their magnitude and situation, there being little to be learnt from their figure or colour, especially in horses.

Secondly, With respect to the matter whereof they are formed.

And, lastly, We shall lay down some general rules to be observed in their cure.

First, When a tumour happens to be situated upon any part, where there is no depth of flesh, as on the nose and upper part of the face, it will not be apt to grow large; or if it be seated on the skin or fleshy pannicle, and free from the subjacent muscles, it cannot be ordinarily expected to grow to any bigness, there being no sufficient source for its substance and increase, as we have observed in a former Section; and as those little
tumours

tumours very often spread themselves over divers parts of the body at once, being thrust out in that manner, because of their contiguity with the skin, which in some delicate animals is able to give little or no resistance, they are therefore more unlikely to alter their size, since it is very reasonable to suppose they make a revulsion from each other, whereby the matter, which might have otherwise been discharged by the common and ordinary secretions, or cast off in one large critical tumour, is evacuated by a vast number of tubercles and little hurdles.

Though tumours, thus situated, do not ordinarily grow to a great size, yet as all animal bodies are made up of vessels capable of extension and dilatation, when there is a continual addition of fresh matter, therefore some tumours that are very superficially placed, and have but a small beginning, will increase to a very large bulk.

It is from hence we may account for wens, anburies, and all other excrescences; for instance, when some duplicature of a membrane, or small vessel, is by an accumulation of matter protruded or thrust forth beyond the common limits of a horse's body, in such a manner as gives no great disturbance to the circulation of the fluids that are within; therefore, as these are not apt to

cause pain, they will therefore grow in proportion to the quantity of matter which is emptied into them; and nature so far encourages their growth, as to enlarge those vessels which nourish the skin, and other integuments, wherein that matter is contained.

It is quite otherwise with those boils and tumours that are seated in the fleshy and muscular parts; for as they occasion violent pain by stretching out the vessels and fibres, and as the pain causes a considerable afflux of matter, therefore any swelling formed that way, must have a speedy issue and determination by the bursting of the said vessels: and as it likewise cuts off all communication of the blood in those parts, therefore it will become a running sore, until there is a re-union of the parts that were torn and disjointed.

All such swellings are usually larger or smaller, according as their situation is more or less in the thick flesh, or according to the multiplicity and size of the vessels which go to their nourishment; and likewise as the matter finds more or less room for itself, as happens in abscesses. The dependency and softness of the part contributes also to the augmentation of the swelling and increase of the matter; because the return of the blood is but slow from the inferior and dependent parts, and because the soft parts are easily stretched out when once the blood has taken a tendency to-
wards

wards them ; which is plainly evident from those sudden and excessive swellings which sometimes arise in the fundament and sheath.

The bones and sinews are also liable to the like infirmities ; yet the swellings which happen to them and other compact parts, seldom rise to any extraordinary bulk, because of their solidity and hardness, which hinders their being extended ; but, for the same reason, makes them very tedious and difficult to be removed. If a horse is put to much exercise while the sinews are relaxed, the pain and anguish will cause a swelling in the neighbouring flesh, and this we may frequently observe in sprains of the shoulder, back, and limbs.

As for tumours in the bones, horses are indeed not very much subject to, except when they are caused by old ulcers that corrode and penetrate to the bones ; this is plain enough in those horses that have been foundered, and battered in their feet for some considerable time, where the diseased foot may be observed to grow much larger than the other, the coffin-bone being often in that case affected. Neither is it improbable that some of those horses that are very large-jointed, misshapen in their limbs, and narrow-chested, have had their bones diseased while they were young and pliable, not unlike those of ricketty children.

The swelling of the glandulous and kernelly parts are also very troublesome, as cannot be unknown to any farrier of practice ; though sometimes they will come to as quick and ready a discharge as those of the muscular flesh ; when this happens, nature is in her full vigour, and the horse is otherwise sound and able to feed ; but when a horse is weakened, and brought much under by any lingering and wasting disease, a swelling in the glands will often continue hard and immoveable, without much pain, increase, or diminution ; this is very much owing to the structure and make of the kernel itself ; though it be but a small part, yet it is so compact, its vessels so small, and closely laid together, as cannot but render them easily obstructed. But yet in the case we have mentioned, when a horse has a lingering disease upon him, the swelling does not readily increase, because the matter is but slowly derived towards it ; likewise, as the passages of the gland are more than ordinarily enlarged, therefore a quantity of matter is discharged proportionably to the supplies it receives ; and the smallness and compactness of the vessels, and their disposition into an infinite number of circumvolutions and turnings, is also the cause why the swelling does not easily decrease.

Those swellings of the glandulous parts that turn to impostumation and matter, are many of them of the encysted kind, and that is also owing to

to the structure and make of the kernels; most if not all of them having little cysts, or receptacles, for their proper juices, which may be easily filled and enlarged when their excretory ducts are wholly or in a great measure shut up, as must undoubtedly happen in all such cases.

We come secondly, to take a view of those swellings, with regard to the matter whereof they are formed, and here it will be necessary to consider that the matter becomes various, according to the various dispositions of horses, or according as the tumours are variously disposed and seated; for when they happen to be superficial and outward, the matter is thin, and for the most part dry, which depends, in a great measure, upon their proximity and nearness to the skin, whereby the thinner parts are the more easily evaporated, and cast off through the pores; though in over moist constitutions the matter will be humid and moist.

The matter derived from membranes and sinews is generally thin and viscid, and that which comes from bones is oily and stinking; but the matter which is more immediately derived from blood, if a horse be in good case, is of a middle nature, neither too thick nor too thin, neither too watery nor too viscid.

Thus it seems to be very plain and evident, as all matter is formed of blood, or the juices produced

duced from it, the matter in all tumours will therefore participate chiefly of those juices from whence it is immediately derived.

The next thing to be regarded in the matter is its colour; this also depends upon the disposition of the blood. If the blood abounds with choler, or gall, the matter will be yellow, and it will be more or less so according as that is more or less predominant. If there is a too great secretion of the gall, then the matter will be more than ordinarily white; and in some obstructions, when the blood abounds with earthy parts, or when these are easily separated, the matter will look foul, dusky, and sometimes be streaked with black blood; the tumour will also look livid, and of a liver colour; and sometimes from a various combination of humours the matter becomes of different colours.

But, lastly, what we are farther to observe concerning tumours, is to lay down some general rules for their cure; here it will be necessary chiefly to attend to their several causes; and, first, a tumour that comes by an outward accident, can only be dangerous according as the accident is more or less violent; but the least accident, where there is a redundancy of blood, may be troublesome, as well as when a horse is poor and low. When there happens to be a redundancy, that must be removed by bleeding and other evacuations,

tions, as far as is consistent with the horse's safety; but, on the other hand, when a horse is low and has got some wasting distemper upon him, besides the outward applications, care must be taken to administer such things as are proper to remove that indisposition. And in all critical swellings, by which we chiefly understand those that tend to the solution of colds, malignant, pestilential, and other fevers, the management must be according as the disease is perceived to be more or less malignant, taking care always to assist, but never to restrain nature; but the reader may consult the Section of the Strangles.

The next thing to be regarded in the cure of tumours in this situation, is what relates to internal tumours and impostumations, which has been spoken of where we have treated of foundering, and chest-foundering, in which we have recommended the speediest methods of revulsion by bleeding and purging; but especially by those things that promote sweat, and keep down pain and inflammation. As to external swellings, the principal intention is either to ripen or discuss them, according as may be most beneficial. Those which are indurated and hard, without heat and inflammation, ought chiefly to be treated with internals; and such as are very powerful, to open obstructions with such local applications as are proper to discuss and dissolve.

Those

Those swellings which are hot and inflamed ought to be ripened, unless when they are seated where they may cause too great a derivation of the humours, as on the sheath, fundament, limbs, throat, &c. but yet if these be malignant or pestilential, it is better to run any hazard than not to bring them to maturity; wherefore the medicines in this intention ought to be such as ripen, but, at the same time, are not over-powerful in drawing.

When the tumour is seated near the interstices of some large muscles, it ought to be opened as soon as there is matter formed within it; otherwise, if the matter be detained, it may separate the muscles, and thereby form a lodgment for itself; and the longer before it is opened, the larger will be the abscess.

In the opening of abscesses, if they be small, a large orifice made in the dependent and lowermost part, with the assistance of a good bandage to keep the parts close together, will be sufficient to make a perfect cure; but if they happen to be large and deep, they ought then to be laid open the whole length, unless the skin can be kept depressed by the application of tow into the hollow part; for so long as there is any lodgment for the matter, the abscess will be constantly filled; the same method is to be observed, as near as possible, with respect
to

to those tumours that are large, and have a pretty large cavity formed within them.

The proper dressing in all such cases, is turpentine mixed with honey or the yolks of eggs, with a small quantity of brandy or spirit of wine; and in most cases, where there is not an ill habit of body, this will be sufficient to make a cure.

Wens, anburies, and other encysted tumours, require a peculiar treatment, and for the most part ought to be quite extirpated; the anburies, which we observed frequently to hang at the legs, and sometimes at divers other parts of a horse's body, consist only of a thick jelly, or spongy soft flesh; as these have generally a small neck to their insertion, they may be taken off without much trouble, only by tying a waxed thread round them, tightening it by degrees; if after they are fallen off there be the appearance of a fresh excrescence, that may be taken down by the help of some gentle corrosive, together with the use of a bandage, and for this purpose tow dipped in vitriol or alum-water will suffice.

To a wen, or any other tumour of that kind, that grows to any bigness, a hot knife must be used when it happens to have a narrow root; but if you have reason to suspect the vessels which lead to it become very large, whereby a too plentiful effusion of blood may happen, or if it be broad at bottom, the best way is then to open it, cutting

the skin both ways across; if there be matter within it, that must be evacuated, and then the bag and other superfluous parts destroyed by degrees; which may be done either by cutting, burning, or by the use of caustic medicines; but the knife is the most expeditious, and if it be of substance to keep the heat, it may be made to answer in most cases.

The swellings of the joints, and relaxation of the sinews, are no otherwise to be treated than by applying such things as are proper to disperse and strengthen them, but the accidents to which these are chiefly exposed, will be particularly handled in some of the ensuing Sections.

S E C T. XXXII.

O F W O U N D S.

WHEN any part of a horse's body is cut, torn, or otherwise divided, he is then said to be wounded, so that wounds are various, and differ one from another according to the diversity of accidents by which they are caused; some are superficial, and others deep; wounds happen sometimes to be straight, according to the tenour and direction of the fibres, sometimes they are

are oblique or transverse, that is, slanting or athwart. If the instrument be sharp, the parts will, generally speaking, be equally divided, but if otherwise, the wound will be ragged and toren, which is usually the case of horses that have been flaked.

We also distinguish between wounds that are simple, and wounds that are complicated; those are said to be simple, where the soft parts are divided without the concomitancy of other accidents; and those wounds are termed complicated, where, besides a division of the soft parts, there is also a contusion of the flesh, a fracture or dislocation of the bones; all which circumstances make the cure of wounds more or less difficult.

The chief things to be regarded in wounds is their situation; for though wounds in the external fleshy parts are not dangerous, nor considered as such, yet those of the nervous parts are often of bad consequence when there happens to be an ill disposition of body, as they are apt to cause exquisite pains; and sometimes, when the small threads and fibres of the sinews are divided and broke, they will bring on a gangrene and mortification of the part; whereas, when they are equally cut, they are not apt to be attended with such accidents.

Inward wounds generally prove mortal if they pierce the large vessels, the stomach, the small
3 A 2 guts,

guts, the bladder, the spleen, the liver, the heart, the lungs, or the midriff; and these are deadly upon a double or treble account, as most of them are not only endued with a tender sensation, but also a muscular action, whereby their re-union is hindered, and likewise as many of them are stored with a multiplicity of blood-vessels which are large. Internal wounds which miss the principal viscera may be cured, and some of these, if they be but slightly touched, are likewise curable, though not readily in brute creatures, who cannot be brought to a compliance with all the requisites that are necessary in such cases.

Wounds penetrating the substance of the brain are also incurable, because of its softness, the multiplicity of its vessels, and the tender sense of its membranes.

As for the signs of wounds, they are manifest to the eye, and when they are deep or inward, they are farther discoverable by the help of a probe, and by divers other circumstances; for instance, if the lungs be wounded, the air will penetrate through the wound with a frothy blood, of a vermilion colour; when the stomach is wounded, there will be violent sickness, with a sudden loss of appetite; the chyle usually issues forth from a wound in the small guts; the urine from a wound in the bladder; and when the kidneys are wounded, the horse will stale blood; by these and many other such signs, internal wounds
may

may be known; but we shall proceed to the cure, wherein we shall begin with some general directions:

First, care must be taken to stop the bleeding when there is too plentiful an hæmorrhage.

Secondly, the wound must be cleansed of dirt, sand, splinters of wood, or any foreign matter.

Thirdly, all the applications made to the wound ought to be warm, especially in the beginning.

Fourthly, it ought not to be exposed to the air.

Fifthly, when the wound penetrates downwards, and the orifice happens to be too narrow, it ought to be widened, either by incision, or dilated with a bit of sponge, or some other porous matter that will swell, but this is only to be done where bandage cannot be applied.

Sixthly, the probe is to be as seldom used as possible, neither ought there to be long tents thrust into the wounds, for by these, wounds that have no bad tendency naturally, often degenerate into ulcers of the worst kind.

Lastly, greasy ointments are for the most part to be rejected, as they are apt to cause the flesh to grow too fast, and when that happens, it must be kept down with a good bandage, or the application of caustic medicines; but bandage is of the greatest importance in the cure of all wounds,
where

where there are not some circumstances to forbid its application.

To stop the hæmorrhage or bleeding, the best way is, before the horse is too much spent, to make revulsion by opening a vein on the fore parts, if the wound be backwards ; but if the wound be forward, a vein may be opened toward the hind parts. In external wounds, where the hæmorrhage is large, that is generally owing to the seat and disposition of the wound, whereby some large branch or artery happens to be cut ; but if the artery from whence the blood chiefly flows, be not very large, it must then be superficial, as about the nose, temples, or skinny part of the legs, &c. where the vessels are unguarded with flesh ; for though the arteries in a deep wound may pour forth plenty of blood while it is recent and new, and where there is a free passage, yet this occasions so great a derivation towards the wound, that even the coats of all the wounded vessels become distended and swelled, so that by their pressure upon one another, their orifices are shut up and squeezed close together, and in this case there is seldom need of any styptic application to stop the bleeding.

When the wounded artery happens to be very large, or much exposed, as has been taken notice of, so that the blood flows too plentifully, it must be stopped either by applying a hot iron, or some cauterising

cauterising medicine, otherwise it must be tied by passing a needle under it, and then binding it with a waxed thread ; but neither ligature nor actual cautery are so certain as caustic medicines ; because an eschar, made by the actual cautery, is apt to fall off too soon ; and an artery, when it is tied, is liable to take to bleeding as soon as the threads rot off, especially one that lies superficial and unguarded, and has not the advantage of being compressed by the fulness and weight of the surrounding vessels.

Therefore, in this case, make a small pledget of flax or fine threads, moisten it with the white of an egg, then lay as much powder of Roman vitriol upon it as will fully cover the mouth of the artery, and apply it over the same ; but care must be had not to apply vitriol, or any other caustic medicine, where the sinews are exposed and laid bare, unless you can fall upon some matter to defend them from being touched by it, otherwise it will be apt to cause convulsions ; but in places where these are most exposed, as the legs, &c. the arteries are not very often seated close to them, and if it were so, milder medicines might be made to answer ; because what is wanting in the medicine, may in the most part be supplied by bandage ; therefore when the wound happens to be on the leg, you need only apply the astringent crocus of
iron

iron, fine French bole, agaric, or powder of dry mushrooms, mixed with the white of an egg, and spread upon a pledget as above directed; and over that, two or three thick compresses dipped in the same astringent, making a firm bandage over all.

The dressing ought not to be removed for the space of three days, that the wound may be well digested, and there may be no farther trouble with a fresh flux of blood. If a swelling happens in the leg, by reason of the bandage, bathe it with warm leys of wine, or some good fomentation; such as that hereafter prescribed for a gangrene, afterwards dress the wound every day with the common digestive. The same method is to be followed in those wounds where caustic medicines are applied, lest, by taking off the dressings too soon, you set them bleeding afresh, by removing the eschar before it is thoroughly formed.

Because the right ordering of all such wounds, as are attended with an effusion of blood, is of the greatest importance, there being few farriers who have skill to manage them according to the rules of practice, especially when any uncommon accident happens in the cure; we shall therefore lay down a method of making the sympathetic powder, which being applied to the wound as a styptic, will not only put a stop to the blood but procure a speedy re-union.

This

This as Solleyfell rightly observes, may be very necessary in a camp, where flies and other insects are hurtful. Solleyfell's way of preparing the sympathetic powder, is by calcining Roman vitriol in the sun; but the following method is much more preferable, and only requires a little more pains:

"Take a quantity of English vitriol, such as goes under the name of *Bow copperas*, dissolve it in water, and filtre it through brown paper, set it in a cool place to shoot into crystals; dissolve the crystals in the same manner, and let it pass through the paper as directed, repeating the operation until the crystals are transparent and pure. Set these crystals in a clean pan, in the sun, either in June, July, or August, so long as till they are calcined to whiteness; when one side is calcined, turn the other, and in a few days the crystals will crumble into powder; if they do not, they may be again beat and exposed to the sun, and stirred three or four times every day; at last, beat them into a very fine powder, and again set them in the sun, stirring as before, for two or three days more, in which time they will be very white; then take in the matter while the sun shines hot upon it, and keep it from the air in glasses well stopped, and in a dry place."

This is the method of preparing the sympathetic powder, as it is inserted in Quincy's Dispensatory, to which we shall subjoin another out of the

same, that bears the title of *A Restraining Preparation of Iron*, and formerly sold by the name of *Colebatch's Styptic Powder*, which is prepared in the following manner :

“ Take a quantity of filings of iron, and pour upon them spirit of salt, to the height of three or four fingers above them; let them stand in a gentle digestion till the fermentation is over, and the spirit of salt is become sweet; then pour off what is liquid, and evaporate it in an iron or glass vessel till half is consumed; at which time, put to it an equal quantity of sugar of lead, and evaporate to a dry powder; if upon its first coming dry the operation be stopped, it has exactly the appearance of Colebatch's powder, but if it be continued longer and the heat raised, it will turn red; it must be kept close stopped from air.”

This styptic may not only be easily made, but is the more for our purpose, as the doctor made an experiment of its efficacy upon a horse.

If this is not close stopped, it will imbibe the air, and flow so as to lose its efficacy. We have been informed, by very good authority, that this is the styptic with which there was so much noise made some time ago, by the author of the *Novum Lumen Chirurgiæ* (and another has also started lately) for a sale of which a patent was procured, only in that was used oil of vitriol, instead of the spirit

spirit of salt in this, but that difference is insignificant. Of the one in question we kept some by us for a time, to wait a proper opportunity to try it, when an extraordinary one happened by a blundering farrier cutting the jugular artery of a very fine young horse, as he was pretending to take off some kernels which grew under his throat. The blood was so prodigious, that the creature must have immediately died, had not the fellow held fast the wounded vessels, by griping the part with his hands, which prevented the profusion, until we dissolved some of this powder, or rather salt, in some warm water, and with curriers' shavings of leather dipped in it, applied it upon the part, where tying it as fast as the part would admit of, and haltering the horse's head up to the rack for about sixteen hours, when it was taken off not one drop of blood afterwards followed, and the part was easily incarnated and healed up. This is a preparation of Maet's, once professor at Leyden, and is in the *Collectanea Chymica Lugduni*; how much soever some have pretended to make a secret of it since, as is now in vogue, and a foreign tooth-drawer pretends to be the inventor of this most famous styptic.

The same author farther takes notice, that this styptic has been recommended inwardly to stop fluxes, especially those of blood; but we are very

sure it may answer that end in all wounds, when applied as in the instance recited.

In this respect it may be made use of by those who are but little skilled in the practice of a surgeon or farrier; as may also the powder of sympathy, though we cannot advise any one to depend upon its sympathetic virtues.

Having said thus much concerning the first intention, viz. the putting a stop to the blood, in cases where the cut or ruptured vessels are large or exposed; we shall now proceed to the other requisites in the cure of wounds.

In the first place, take notice that in all good constitutions, a flesh wound will easily be cured, if it is not too much exposed to the air; as we see in many instances, both in brutes and human bodies; and a wound made according to the direction of a muscle, or only somewhat slanting, will heal with little or no application, if the horse is not put to hard exercise; for in that case, as often as the muscle is contracted, the wound will be more or less opened, according to the force whereby the wounded member is moved. All wounds that are large, ought to be stitched, when that is rightly performed, nothing contributes so much to their re-union, as it in some measure prevents the inconveniences of motion, and likewise, as it puts a stop to the swelling, which without a plentiful and speedy discharge, will of

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ten cause ulceration, together with a preternatural hardness in the lips.

Stitching and bandage are nearly allied to each other, and sometimes the one supplies the place of the other; but most wounds may be easily cured, when stitching and bandage can come into one another's aid. Wounds which are large and deep, and which may be pressed together with your fingers, are the most fit to be stitched; but wounds that penetrate to the bone, ought not to be stitched when the flesh is much divided from the bone, otherwise an abscess may be formed, which will cause the bone to putrify; the same caution is also to be observed when, by your probe, or by a swelling distant from the wound, you have reason to suspect some of the muscles are divided, as it happens in very large contusions. In this case, bandage is also to be made use of, with the proper applications to the wound; but if the swelling continues, which for the most part happens if at all underneath the wound, and therefore becomes unable to bear a firm bandage, it must be treated as an impostume, by the application of ripening cataplasms, and when it comes to maturity, it must be opened as low as possible, that the matter may have a free passage and vent, after which the bandage will become of infinite service.

Wounds

Wounds that are of a round and circular figure cannot be stitched, but nature must fill up that space by degrees; neither can those be stitched which are very ragged and toren; but in a wound that has several points and angles, stitches may sometimes be made to do service, but for this purpose no general rule can be laid down. Solley-fell advises to cut all circular wounds into a long figure, but that needs seldom be done when bandage can be applied, for the only thing that makes a circular wound hard to cure, is when the bottom of the wound happens to be large and loose, or bruised, or when the wound penetrates perpendicularly downwards; in this case a moderate incision downward may be made, but when a circular wound is not very deep, or if it is not in some respect like a well or pit, the application of bolsters or bandage, to keep it firm at the bottom, will for the most part suffice.

Lastly, the needle is to be sparingly used among the sensible and nervous parts, for there are divers circumstances which may require stitching even where the tendons are wounded; yet it may be more particularly gone about where there is a very sound constitution, for an ichor and viscid matter is perpetually flowing from the tendons, even in the best habits, which cause numberless accidents; therefore as these are oftentimes heightened by stitching, the practitioner should be
very

very well versed in practice to perfect a cure of such wounds, otherwise than by proper and plain dressings; for if this operation has not always the desired success on human bodies, who can be managed so as to keep the muscles to which those tendons belong from all manner of action, much less can be expected from brutes, especially horses, who keep more in a standing posture than any other, therefore are not only obliged and under a necessity sometimes to move those parts, but even at most times to lay a great weight upon them.

To perform this operation aright, the farrier ought to be provided with several needles, some straight, and some crooked; of these, some ought to be more arched than others, and accommodated to wounds that are deep; and for this end also they ought to be of different sizes; both the straight and crooked should be edged and not round, that they may the more easily penetrate, and cause the less pain; those that are appointed for deep wounds should be strong, that they may not break, and cause trouble in the operation; but in all these things the farriers may take pattern from the surgeons.

The stitching of superficial wounds ought to be performed with a straight needle, and is chiefly necessary upon parts that are prominent and exposed to view, where the skin being only burst, gives way and opens wide, though it be not much separated

separated from the subjacent flesh, and if it is not drawn together, it will leave a baldness, or the hair that grows upon the part will be white, and softer than that which covers the rest of the body; either of which becomes a deformity upon the cheek, the top of the loins, or upon any joint, as we sometimes observe when these parts have been galled, and where there is no room for such an operation.

In all deep wounds a crooked needle must be used, and of such a form as will easily make a compass under the wound, for the farriers' method of tacking the lips together with a common sewing needle, or packing needle, as we have sometimes observed, is quite short, nay even contrary to the intention of stitching, and often does a deal of mischief, and would do much more if the stitches did not soon break, as it leaves room for the matter to gather in the bottom of the wound. Therefore, when a farrier goes about the stitching of a deep wound, he ought first, if there be congealed blood within it, to clean that out, and having pressed the two sides together, he must make his first stitch in the middle of the wound, passing his needle so as to describe a half-circle under it, and with a strong waxed thread, or shoe-maker's end, tie the wound close together; the rest of the stitches ought to be made at equal distances, and so near each other as to keep all parts equally close. They ought also to be tied in a bow knot,
that

that they may be opened in case of inflammation, or matter gathering in the wound, which will sometimes happen if it is not sewed up soon after it is received.

The cure may be finished by dressing the wound every day with pledgets of tow, spread with balsilicon, or any other digestive, washing it often with warm wine, spirit of wine, or brandy.

In wounds that are ragged and uneven, any loose bits of flesh or skin that cannot be again united, ought to be clipped off with a pair of scissors, the dressing always made so large as to cover the wound, and not to sink too much into it, for that not only retards the cure, as it hinders the re-union, but often causes a bad disposition in the wound itself, which is followed with foul flesh, hard edges, &c.

If the wound penetrates to the bone, no kind of ointment ought to be applied to it, for all greasy things putrify the bones; therefore let your applications to the bones be only pledgets of lint, dipped in warm honey of roses, mixed with tincture of myrrh and aloes, until the bone is covered; but if it should by any accident grow foul, the flesh ought, for the most part, to be laid open so far as it is discoloured, otherwise it will be apt to cause troublesome symptoms; and if the blackness does not come off with the dressings, it ought to be scraped gently, or have a pledget of lint

dipped in tincture of euphorbium applied to it, which will cause it to exfoliate and cast off the foulness, and after it is become clean, apply honey of roses, &c. as above directed.

A very material thing in the managing of all large wounds, is a dextrous and seasonable application of the dressings. A wound that is much inflamed, can bear no firm bandage until the inflammation abates, which generally happens as soon as it comes to matter plentifully; after that, bandage will be of great service, and may be made tighter as the wounded part becomes able to endure it; but one thing ought carefully to be observed, that all wounds must have time to digest, after the first dressing, two or three days, according to the size thereof; and when a wound or other swelling happens near any cavity, any such cavity ought always to be filled with hurds or bolsters of tow, and kept there with bandage; in this respect the following instance will be a good precedent:

A horse was wounded with the point of a fork, on the outside of the hough, a little above the joint, which being a tender sensible part, occasioned violent pain, accompanied with lameness, and brought such a sudden flux of humours towards the joint, that all the cavity on each side, and beneath the master sinew, was swelled to a
prodigious

prodigious degree, and in a short time filled with matter, and as soon as the matter was pressed out of it, it always filled again, which would soon have corroded the sinew; we advised the farrier, after pressing out the matter, to fill up the empty space on each side, under the sinew, with hurds dipped in spirit of wine, to keep the divided skin together, and prevent the matter from falling into it; which, with the application of a strengthening charge round the joint, and an easy bandage, made a perfect cure in a few days.

We shall conclude with some observations concerning inward wounds, which in a great measure depend on the right regulation of a horse's feeding; for when a horse is inwardly wounded, he ought to be restrained from all such food as is any way hard and binding, having nothing allowed him but scalded bran, and sometimes a little boiled barley; his constant drink ought to be barley-water, and at first a little sal prunellæ, or purified nitre, dissolved in it, as has been prescribed in a simple fever.

The following balls may also be given for three or four days, to secure him from bleeding inwardly:

Take of green comfrey-root, cleaned and scraped, three pounds; roots of white lilies, one pound

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and

and a half; beat them into a pulp in a large mortar; then add dragons-blood and gum-tragacanth, in fine powder, eight ounces; and sugar of lead, half an ounce; with wheat flour and molasses, make it into a mass, and divide it into doses of two ounces, each to be given every morning and afternoon.

If the horse becomes bound in the body, emollient clysters may be given him, of mallows, marsh-mallows, the herb mercury, the roots of marsh-mallows, and such like things; adding no strong purgative, but rather four or five ounces of treacle or honey, with a sufficient quantity of oil or butter; and if the guts be wounded, the use of clysters must be laid aside also; and if his diet should not be enough laxative, he may be provoked to dung, by the following mild suppository:

Take a pound of honey, boil it in a pan or skillet till it turns to a dark-brown colour, stirring it constantly; then take it off the fire, and when it begins to be cold, make it into a roll four or five inches long, and introduce it into the horse's fundament immediately, otherwise it will soon dissolve and turn to liquid. Castile sope may also be used instead of a suppository, when it is necessary to provoke your horse to dung.

Into

Into the wound may be poured, or gently injected, red wine, with honey of roses, made blood-warm, and outwardly it may be covered with a pledget, spread with basilicon, or any other proper digestive; and above that, a compress of linen cloth, made into several folds, bound on with a bandage, and over all a cloth with buckles and straps, to keep his body firm. The same method may also be observed in all wounds that are accompanied with a fever, only the balls above prescribed need not be given but where there is a great discharge of blood, and if the clysters require to be quickened, that may be done by dissolving in them a handful of common salt.

S E C T. XXXIII.

OF GUN-SHOT WOUNDS AND BURNS.

THESE kind of wounds are distinguished by their situation, size, and figure; some are very dangerous, some altogether incurable, when they happen to penetrate the brain, or other noble parts; and those which fracture the limbs of a horse, may also be looked on as incurable, since a horse in that condition is able to yield no farther service. Their size and figure depend upon the instrument wherewith they are inflicted, and also
render

render the cure more or less certain ; for a small wound is more easily cured than one that is large ; and a wound that is circular and round, made with a bullet, than one which is ragged and toren, such as happens sometimes by splinters, pieces of iron, stones, &c. but however they may differ in these respects, they are all of them accompanied with loss of substance, contusion, and bruisingo the part ; for this reason, no wounds made by fire-arms are liable to such great hæmorrhages of blood, as those made by a sharp and cutting instrument.

The first intention of the cure of gun-shot wounds, is to extract the bullet, or other foreign matter whereby they are made ; but that is not always practicable, for bullets are oftentimes lodged within the cavity of the body, and in the thick fleshy parts, where the bringing of them out is by no means to be attempted ; sometimes, after several years habitation, they fall more outwards, upon parts of more slender substance, and are cast out by impostumation, or brought away by incision. However, the practitioner ought at first to make trial, yet not so as to tear the flesh too much ; but if his endeavours are to no purpose, he ought to make a counter-opening, on the outside towards the bottom of the wound, where he shall perceive any hardness (nevertheless without touching the large vessels) and by this means he may draw out the bullet with his fingers, or any
convenient

convenient instrument ; but this method of counter-opening, is the more necessary, and the more immediately to be gone about, when pieces of timber, stone, iron, or other extraneous bodies lie in the flesh, as all such things are apt on a sudden to cause very bad symptoms, because of their unevenness.

The next thing to be done in the cure of gunshot wounds, is to bring them to a good and laudable digestion, that they may cast off the mortified flesh ; to effectuate which, nothing can be better than the common digestive, with a small mixture of oil of roses poured into it every day ; let the wound be also often cleansed with spirit of wine, and all the hot and inflamed parts about it bathed with the same. When the inflammation is very great, and like to be attended with a fever, a moderate quantity of blood may be taken, laxative clysters administered, and a pultice applied of barley-flour, fenugreek-meal, and linseed-meal, boiled in milk, till it be thick, and a sufficient quantity of ointment of marsh-mallows, to make it moist, adding also an ounce of camphor, powdered and dissolved in sweet-oil, to every pint-bason full of the pultice. This may be applied hot twice a day over the inflammation, putting only a very soft and short tent into the orifice. But if the large vessels be wounded, and send forth an immoderate flux of blood, in that case, the
first

first dressing may be made with a soft tent, dipped in a solution of the styptic powder described in the preceding Section; and if the wound penetrates through any member, both orifices must be dressed alike. If the wound be among the sinews, or other nervous parts, oil of turpentine, mixed with the common digestive, may be applied to it, bathing it now and then with camphorated spirit of wine. The cautions laid down in the preceding Section, are also to be observed with respect to bandages and dressings, with this farther notice, that no gun-shot wound can bear any bandage, but just to keep on the dressings, until the eschar and mortified parts are discharged.

As to burns, whether they be made with gun-powder, or any other way, they ought in the first place to be bathed with spirit of wine, camphorated; and afterwards anointed with oil of roses, St. John's-wort, linseed-oil, or butter. If the burn be new, the heat and inflammation may be taken off, by applying immediately to the part pounded onions; some use the juice of onions and verjuice mixed together; black-sope and common salt have the same effect; there are others who use quick-lime, beat into an ointment with fresh butter; but nothing is better, or so safe, as the camphorated spirits, applying afterwards the following cataplasin:

Take

Take white lily-roots, three pounds ; fenugreek and linseeds, in powder, of each half a pound ; boil the lily-roots and seeds very soft, and beat them up into a pulp, then add more water, with a few handfuls of bran, and boil it all together into a pultice ; to which mix a pint of sweet-oil, wherein an ounce of camphor has been dissolved.

If the burn be deep, it must be scarified with a fleam, and the same pultice applied over it to hasten the eschar or burned parts to a separation. Bleeding and clysters may be also complied with, when there is excessive heat, inflammation, &c.

S E C T. XXXIV.

OF A GANGRENE AND MORTIFICATION.

THIS disorder is a sudden, violent, and excessive inflammation, with intolerable pain, and is no other than a beginning mortification. The cause is sometimes from an ill habit of body, but commonly from a puncture, from wounds in the tender sensible parts, or when splinters of bones and other sharp and pointed matters stick into the flesh or sinews, or the ill management of any large

wound whatsoever may and often does bring on a gangrene and mortification.

As to the signs, besides the violent and excessive pain, the part looks of a deep red, inclinable to purple; whereas in a mortification, there being an absolute stop put to the blood, the part becomes black, soft, perished, dead, and without sense.

The cure, while it is yet a gangrene, consists chiefly in the application of spirituous things, as spirit of wine camphorated (viz. an ounce of camphor to every pint of spirits) used alone, or mixed with spirit of scurvy-grass, or spirit of turpentine; a fomentation made as follows, will also conduce much to the removal of a gangrene:

Take tops of centaury, camomile-flowers, oak-bark in powder, mint, wormwood, and bay-berries, of each a handful; pot-ash, two ounces; boil them in two gallons of water to one gallon; strain it, and add camphorated spirit of wine, two quarts.

Bathe the wound or gangrened part with flannel or woollen cloths dipped in this fomentation; and after they are wrung out, apply the cloths almost scalding hot to the part; it may be likewise washed with the fomentation, adding a sixth part of spirit of sal ammoniac, at the time of using it. All things that are proper to promote sweat are to be

be given inwardly, such as has been prescribed to remove chest-foundering, &c. Notwithstanding, after these means have been made use of, and if the gangrene does not give way to them, the practitioner must with a fleam or lancet scarify to the quick, that the part may be brought to suppuration, having in readiness horse-dung boiled in ale or wine, to be applied hot as a pultice, and as soon as the wounds come to matter, they may be dressed with *Ægyptiacum* made hot; and if there be still a very great foulness, and tendency to a mortification, the ointment may be mixed with butter of antimony, which is a very powerful remedy; or with every ounce of *Ægyptiacum*, may be mixed six drops of aquafortis; Solleysell advises lime-water; when that proves not efficacious enough, he recommends the following, viz.

Take crude alum, one pound; German copperas, grossly beaten, half a pound; verdegris, in powder, three ounces. Boil all together in a gallon of vinegar, to the consumption of one half; then without straining the liquor, reserve it for use in a glass phial. And if this be too weak, he advises two ounces of aquafortis to be added to each quart, shaking them well together.

This was the prescription that Mr. Gessier, the quack-surgeon, challenged the Surgeons' Com-

pany so often about, in his advertisements, to stop mortifications with in the human species.

This liquor is to be made hot, and the part to be dressed with pledgets of tow dipped in it.

In all large mortifications the practitioner must, with a sharp instrument, cut and extirpate the dead flesh, taking care not to hurt any of the sinews that are found or recoverable, either with his instrument or applications. Let his applications to them consist chiefly of such things as are spirituous; dressings with honey of roses, beat up with the yelk of an egg, with a fourth part of camphorated spirit of wine, and afterwards all such things as are cleansing and proper to promote a laudable growth of new flesh.

S E C T. XXXV.

OF THE BITE OF VENOMOUS BEASTS.

SUCH wounds as are made by the biting of venomous beasts are frequently mortal, for the poison communicated to the blood, causes in it so speedy a rarefaction, that the whole animal frame is put into an immediate disorder, the wounded part becomes swelled, inflamed, of a livid colour, and its progress much more sudden than any gangrene, proceeding from whatsoever other

other cause. The biting of a mad enraged dog is not so poisonous as is generally supposed, but only as those creatures are apt to strike their jaws with great force, whereby they sometimes wound and bruise the sinews and nervous parts.

The bite of an adder is plainly venomous and deadly, from many instances, both among men and brutes; and the bites of those animals are generally followed with a drop or two of greenish matter, which by its corrosive quality, poisons the wound, and infects the body.

There are infinite ways of curing those bites, some use the actual cautery immediately; and some cut out the part that is bit; but these operations cannot be allowed of in all parts, but chiefly when the wound is made in the flesh, and free from the nerves and sinews; others only apply garlic, onions, bay-salt, and bacon, stamped together into an ointment; others use stamped rue, mustard-seed, pickled-herrings, and black-sage, with a sufficient quantity of deer-suet or bears-grease; and there are some who only lay over the wound Venice treacle, or mithridate, which are very good, especially if the spirituous embrocations, directed in the preceding Section, be also complied with and used often. The viper-catchers, who are often bit with adders, cure themselves by anointing the wound immediately with adders-fat, which they always keep in readiness in a gallipot, the certainty of which cure has
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been evinced by the experiments of a great and eminent physician, made upon dogs; who very reasonably ascribes the healing virtues of that fat, to its clammy and viscid parts, but especially as it is more penetrating and active than other oily substances, whereby he supposes it to involve, and as it were sheath, the volatile salts of the venom, which are the instruments of these deadly mischiefs that attend the biting of such animals; and for the same reasons, the vipers-fat or grease may no doubt be of service in all other bites or envenomed wounds.

When the poison has once got into the mass of blood, the chief part of the cure must be owing to inward means, which ought constantly to be used, at the same time proper applications are to be made outwardly. Solleyfell recommends the tincture and essence of vipers, which indeed is not improper, only that their scarcity makes those preparations very dear in our country; however, to a horse of great value, a dose of two or three ounces of the powder of dried adders might be given in two ounces of adder's oil, mixed in a pint of canary, and repeated several times; as soon as the malignity and venom is destroyed, the sores may be treated as other wounds or ulcers.

SECT.

S E C T. XXXVI.

O F U L C E R S.

SORES of a malignant quality, so as to hinder the re-union of the parts, are termed *ulcers*; these are distinguished according to their size, situation, or degree of malignity; some are superficial, and only appear on outward parts; others are deep, and are therefore termed *cavernous* or *fistulous*, which names are borrowed from their figure.

The superficial ulcers are many, and attended with divers qualities; some being soft and crusty, sending forth a viscid matter of a cadaverous and carrion-like smell, from whence they are also called *putrid*; others have fungous and hard excrescences appearing in different aspects; and scirrhous edges, which in horses are very thick, having their bottom of a livid or dusky colour; full of little papillæ and unevenness. The cavernous and fistulous are also distinguished from each other; the cavernous being deep and broad at bottom, full of little holes, with a small and narrow orifice, from whence there continually issues a virulent corrosive matter; whereas the fistulous ulcers have long, straight, and deep holes, which sometimes communicate with one another like a rabbit-

rabbit burrow, their sides callous and hard, and the matter sometimes corrosive, sometimes not. There are other sorts of ulcers taken notice of by the writers of surgery, as the cancerous, corrosive, &c. the first is seldom or never to be seen in brutes, and the last seems not to be a proper name of distinction for any particular kind of ulcer, that being an evil quality which is more or less to be met with in most ulcers, and by which they may be looked upon to be more or less malignant.

Ulcers are also distinguished with respect to their causes, whence some are called *primitive* and others *degenerate*; it is sufficient for the understanding this matter, to know that all ulcers take their origin immediately from wounds, bruises, tumours, or other eruptions and breakings out of the skin; some of which turn ulcers by ill management, and others from a vicious disposition in the blood.

As to the signs, they are manifest from what has been already said of their several kinds, we shall therefore make some few observations concerning their prognostics:

First, an ulcer that is superficial, is less dangerous than one that is deep, as it may for the most part be cured by manual operation, with the assistance of proper applications; neither need we
acquaint

acquaint any one that a small ulcer is more easily managed than one that is large.

Secondly, an ulcer proceeding from a malignity in the blood, &c. whether it be large or small, superficial or deep, is more dangerous than one which is only degenerate, and not attended with such bad circumstances.

Thirdly, as a degenerate ulcer may, by long continuance, create an evil disposition in the blood, by hurting the common and ordinary secretions, and inducing an ill habit, it may therefore be as dangerous and bad to cure as any; for a sudden and injudicious cure of such an ulcer, is often the cause of some other disease.

Fourthly, ulcers that are formed of abscesses in the hips, loins, thick part of the shoulders, under the blade-bone, and in the joints, and have communication with the bones, as these lie out of reach, they are therefore very difficult and hard to be cured; and if the cavities of such abstruse ulcers be large, they will soon bring the body of a horse into a waste.

Fifthly, ulcers in the dependent parts, as those of the legs, are very obstinate, as they become the sink and drain of all the humours, but especially as the matter proceeding from the tendons, &c. creates a very ill disposition in them.

Lastly, all ulcers in the lungs, kidneys, liver, and other inward parts, generally prove mortal

sooner or later, according as they are situated nearer or at a distance from the larger vessels; and according to the other circumstances that may attend them.

We have already taken sufficient notice of those kinds of ulcers, where we have treated of broken-winded and consumptive cases, of hectic fevers, &c. having recommended for their cure the use of cleansing, healing, and balsamic medicines inwardly, with a proper regulation in their feeding and exercise.

As to outward and superficial ulcers, with their different accidents, they have also been sufficiently handled in a former Section, both as to externals and internals. The ulcers of some particular parts have likewise been taken notice of, as the glanders, &c. Those of the legs, feet, and other dependent parts, shall be treated of when we come to the diseases of those parts. It remains therefore that we put a period to this subject, by laying down some directions concerning the cure of those ulcers that are termed *cavernous* and *fistulous*, and likewise such of them as are *abstruse*, and form themselves into several meanders and hidden abscesses among the bones and fleshy interstices; though in the latter circumstances, we can give the practitioner but little hopes of success, for the reasons already alledged, yet so long

as a horse continues serviceable, the proper means ought to be used.

Therefore whether such an ulcer proceeds from an old deep wound, or any other cause, the chief thing to be done is now and then to inject proper liquors into it, forbearing the use of those things that are very corrosive ; for though corrosive applications are sometimes proper in ulcers that are superficial, and where the eschar can be brought off by the proper dressings, or the help of an instrument, and where a fresh growth of superfluous matter can be suppressed by bandage ; yet, in the case now before us, they are often hurtful, as all such applications cause accidents that ought to be remedied by art, and ought therefore to be within the reach of the artist ; for which cause, the properest liquors to be injected into all such ulcers, are decoctions made of the roots of briony, birthwort, flower-de-luce, &c. with a third part of spirit of wine ; rectified oil of turpentine, common honey, or honey of roses, may also be made use of in the same intention ; and when there is a foulness in the bones, which may be known by the thinness, oiliness, and stench of the matter, in that case, a tincture drawn with wine from myrrh, aloes, frankincense, olibanum, saffron, cinnamon, and such like things, will make a very proper injection to be used sometimes. To the wound may

be applied pledgets of tow, dipped in the same liquor, or some good digestive, and over the dressing a sticking-plaster. The injections should always be made warm, and when the part will admit of firm bandage, it will never fail to be of service.

But those ulcers which upon the trial with the probe, &c. are found to be within the reach of an operation, they then ought to be laid open, avoiding, as much as possible an effusion of blood, by dividing the large vessels; and the inconveniencies that may happen by cutting the nervous and sensible parts. After incision, any such ulcer is to be treated as a fresh wound; only, that instead of a re-union, by closing the sides again, they must be kept open with dossils of tow dipped in styptic-water the first dressing, and afterwards in a digestive, such as basilicon, or the like, that nature may fill up the whole space with a growth of new flesh. If there be still a bad ulcerous disposition in the part, cleansing ointments, as basilicon mixed with red precipitate, Ægyptiacum, or, if necessary, stronger corrosives may be made use of, as copperas-water, lime-water, a solution of blue-vitriol, or any of those directed in other parts of this treatise, in the like intentions, may also be complied with to wash the sore; if the bones be foul, the callous sides must be scarified, or touched with a caustic, to bring them even and smooth. The
horse

horse may also be purged once or twice, and afterwards go under a course of the antimonial or cinnabar alterative balls, &c.

S E C T. XXXVII.

OF CAUTERIZING AND GIVING THE FIRE.

CAUTERIZING is performed by an instrument made hot, or by corrosive and burning medicines, and these are either natural or artificial, which may be made stronger or weaker, according to the several intentions in which they are used. The first is called the *actual cautery*, and the last the *potential*.

We make use of corrosive and burning medicines to cleanse and destroy all foulness which obstructs and hinders the cure of an ulcer, to keep down a preternatural growth of fungous flesh, to eat away excrescences, to open abscesses and impostumes, moreover to stop up the mouths of blood-vessels, and thereby to prevent an hæmorrhage of blood. The actual cautery is also made use of to most of the same purposes ; but as we have taken notice of these things already, and reduced them to practice, with the necessary cautions in their applications, we shall not therefore spend

spend the reader's time in repeating them, but proceed to the other intentions of cauterizing, which in a more especial manner go under the denomination of *giving the fire*.

The fire is so ancient in the practice of surgery, that it seems to be one of the first methods used to remove pains in the joints, &c. proceeding from cold glutinous humours impacted in them, as may be learned from Hippocrates and others; and though it be now greatly in disuse among us in these intentions, yet it is to this day very much practised by the Egyptians and Arabs, and it is reported of the Moors and other Barbarians, that they seared their arms and shoulders, only to strengthen them to draw the bow. The ancient method was of burning flax or cotton under the diseased member, made into a pyramidal form, that the part might be injured to it by degrees, and so enabled to bear a necessary augmentation of the flame. And Sir William Temple had seen such good effects from it, that it encouraged him to write his Essay concerning the Cure of the Gout by *Moxa*, which is only a kind of cotton set on fire in this manner.

Whatever approbation may be given to this method of curing diseases in the human body, it is certain the effects of fire are very extraordinary
with

with regard to horses, in old diseases in the joints, sinews, and nervous parts, after they have bid defiance to all artificial compositions whatever; neither will this be thought strange, if it be considered that those parts are very compact and solid, being composed of an infinite number of fibres and nervous threads, laid so close together, that there is not a cavity or interstice to be discerned in them when cut asunder; and therefore, when these are obstructed, nothing can be supposed to relieve them but what is of the most powerful efficacy.

Therefore it is very plain that actual fire may be of the greatest importance in removing obstructions, and that is in two respects.

First, as by cauterizing and burning the outside there is a discharge made, and of consequence a derivation of matter from the obstructed part, which must give more liberty to the inclosed fluid.

Secondly, as the heat communicated in this manner, by the active particles of fire, must needs give a kind of new life and motion to the viscid juices which are thus impacted, whereby they become more fitted to make their way through their proper vents and passages, and likewise as it forces the relaxed fibres to contract themselves.

This is so certain an effect of fire, that it is even plain in those instances where many of the
poorer

poorer sort among the country people cure themselves of the kibes, &c. by holding their heels over burning coals, or a hot pair of tongs, though they do not fear the skin; and many of the good effects which proceed from the application of ointments to hard obstinate swellings, and aching pains in horses, are more owing to the hot bar of iron made use of in the rubbing in of the ointments themselves, several of these being no better than common hogs-lard.

And as the fire becomes thus useful in all such intentions, by removing settled obstructions, so it is of no less importance in ring-bones, quitter-bones, and, in fine, to loosen all gristly and horny excrescences that grow out upon the legs and feet, or any other part of the body; where by searing their substance and piercing the skin near their root or insertion, a stop is put to the humours that nourish them, so that they are made to rot and fall off.

Solleyfell lays down three important directions in giving the fire.

First, not to press too hard upon the part.

Secondly, to let the knife be red-hot, but not flaming.

Thirdly, to heat the knife or instrument in a charcoal fire.

The two first of these directions are absolutely necessary, but the last may be complied with according to the artists conveniency.



In

In all disorders of the sinews and nervous parts, the fire is to be very sparingly given, and a drawing-knife is certainly the most proper instrument; though there are some who make use of a large gold coin, from a conceit of its having greater medicinal virtues than really belong to it; some content themselves with silver, and there are others who prefer copper, from an opinion of its being a metal that resists putrefaction, and among these is our last-mentioned author. Most of our English farriers make use of iron instruments in all their cauterizing operations, which, if they be smooth and well polished, are as good as any; and in this it is sufficient that they have the example of most surgeons for their authority.

The knife should be round on the edge, and pretty thick, as it may keep the heat as long as possible; it ought also to be heated in a very clear fire (if a charcoal fire cannot be had) and afterwards well rubbed upon a linen cloth, that no dirt or ashes may stick to it, and until the flaming redness is wore quite off; then the farrier must, with a steady, dexterous, and light hand, draw his lines or rases on each side the joint or sinew, following the course of the hair, without making cross lines; for besides that they are of no importance in the cure, they cause a very great deformity. Due care must also be had never to pierce the skin, but rather repeat the strokes the oftener, until it becomes of a pale cherry-colour; if the fire

happens to touch the sinews, it will be apt to cause convulsions, and if the horse should even survive these disorders, he may hereafter become irrecoverably lame.

When the grievance happens to be on the hips, shoulders, or other fleshy parts, or when the fire is given to disperse any obstinate phlegmatic humour that cannot be brought to suppuration, the artist may go on with some boldness; besides that, the lines may be made of any figure, either in shape of a palm, arrow, shield, or what the farrier pleases; the skin ought also to be pierced more or less, according to the situation and urgency of the disease, that a powerful revulsion may be made by drawing away a plentiful deal of matter. There are many instances of cures of this kind to be met with among horses, and even some in human bodies, where by burning the hip with a hot iron, the ischiatic pains, and other nervous obstructions, have been altogether removed. In cases where the skin is to be pierced, it ought to be done from below upwards, that the matter may flow downwards, the better to prevent an ulcerous disposition in the fores; and into the orifice or holes may be introduced little soft tents of tow, dipped in warm basilicon, or any other suppurative ointment; for if these be crammed with hard tents, the anguish that must necessarily happen, after giving the fire, will be apt to create a fever.

All

All the seared and burnt parts ought immediately to be bathed in spirit of wine, and afterwards a mixture of bees-wax and oil melted together, or with common tar, until the eschars fall off; but if there be a very great anguish, and a tendency to a swelling, which is very apt to fall upon the legs, especially of those horses that are tender and washy, in that case camphorated spirits may be used two or three times a day, and, if need require, the cataplasm directed for the cure of burns. These accidents may in a great measure be prevented, and the whole intention more effectually answered, if, before the operation, recourse be had to fomentations and baths, or attenuating oils, such as the oil of earth-worms, or the soldiers' ointment; for by these means, the grievance will more easily yield to the impressions of the fire, and the burnt parts come sooner to a suppuration.

We need not acquaint any one, that the horse must be secured with collars, or such contrivances as can be made effectual to prevent his licking, biting, or rubbing the scabs, which is very common when they begin to heal; otherwise it will cause a great deformity, and such an one as cannot be easily remedied. What relates to the the firing of ring-bones, quitter-bones, scratches, &c. shall be treated of in their proper places.

S E C T. XXXVIII.

O F R O W E L L I N G.

BY rowelling is meant an artificial vent made to discharge noxious humours; but the effects of rowelling are not the draining away of ill humours, as most people believe, for the matter that proceeds from the rowel is formed of the blood, so that by it both the good and the bad are evacuated. Therefore all that can be proposed by rowelling, is to make a revulsion or diversion from any part that is weakened or relaxed by old obstinate obstructions; and in this sense, it is useful in many of the same intentions as the fire, and is very profitable in all achs, cold phlegmatic swellings, and even sometimes in lameness and infirmities of the legs. It is also a relief where there is a fulness and redundancy of humours, and in most diseases of the eyes; but rowelling is absolutely hurtful to horses that are poor, lean, and hide-bound, or to those that are hectic, consumptive, &c. There are two sorts of rowels, viz. a hair-rowel, and a French-rowel; the one is what surgeons call a *seton*, and the other a *fonticle* or *fontanel*, but the fonticle or French-rowel is by many preferred, as it is not so apt to cause an abscess, and is therefore more easily dried up; but in
cases

cases that require a considerable discharge of matter, a small abscess is not to be altogether feared, because such an one as happens upon rowelling, may be easily enough cured by the application of bolsters and a tight bandage.

We need not lay down any particular directions concerning this operation, since it is so common that even every country smith can perform it. We shall only take notice that the French-rowel ought always to be put in the interslice or furrow that goes between the muscles, either towards their origin, insertion, or any other part throughout the whole tract of any interslice; but to prevent a too great abscess, the hair-rowel may be better placed towards the lower part of the interslice, where the furrow is not so deep, that the matter may easily run off; but care ought to be taken not to put in the rowel too near the tendons, but where there is some substance of flesh, and if rowelling at all is necessary, two or three at least are little enough to do any good.

S E C T.

S E C T. XXXIX.

OF GELDING AND CURTAILING OF HORSES.

THE gelding of a foal is an easy operation, and seldom attended with any ill accidents; but if a horse's testicles should be bruised or otherwise hurt, and so become irrecoverable, the extirpating of them will require the skill of a good artist.

The horse being first laid on some soft place, the scrotum or outward case is to be cut open on each side, when both testicles are to be taken away; and where there is but one, on that side where the diseased testicle lies. Afterwards tie a waxed thread round the strings, to stop the blood, and with a pair of sharp scissars or knife cut the strings between the ligature and the testicle, applying to the wound pledgets dipped in the common digestive, mixed with spirit of wine and camphor, laying over all compresses and a bandage.

If an inflammation happens, it is to be treated with warm fomentations and spirituous things, and the horse kept to an opening diet, with barley-water for his drink.

This is a more safe method than what is generally practised, viz. by applying the actual cautery and then filling the place with salt, for though it
may

may succeed with a colt or foal, while the spermatic vessels are very small, yet it must needs expose a horse to many accidents when he is come to maturity.

As to the curtailing or docking of horses, all that we intend upon the subject is only to advise the farrier that his searing-iron should be smoother and better polished than what are generally made use of, and that it should be rubbed very clean on a woollen cloth; for when it is otherwise, the scoria or sparks that fly off from the iron are apt to cause an intolerable anguish, which falls down into the fundament and sheath; neither should the iron be at any time applied flaming hot, or else it will bring the burnt part along with it; for want of this last caution, we have seen the iron used two or three times before an eschar could be formed, which is always of bad consequence, as it must be a considerable time before the bone is covered.

S E C T. XL.

OF THE LAMPAS.

THIS disorder is an excrescence in the roof of the mouth, which hinders a horse from feeding, and happens usually to young horses.
It

It is cured by applying a hot iron made for that purpose, and is successfully performed in all parts of the kingdom; so that there is no need of any caution, only that the farrier do not penetrate too deep, so as to scale the bone that lies under the upper bars, for that would be attended with very troublesome and dangerous symptoms.

S E C T. XLI.

OF THE BARBS.

THESE are small excrescences under the tongue, which may be seen by drawing the tongue aside, and are constantly cured by cutting them off, as close as may be, with a pair of scissars, and rubbing the place with salt.

S E C T. XLII.

OF THE TICK.

SOMETIMES we find this among the diseases of horses, yet it is, by the best judges, looked upon to be an ill habit rather than a disease, which may probably at first proceed from the pain and itching that happens in the breeding of teeth. There are divers methods used to break a horse
of

of this habit, but the most approved is, to make him eat in a place where there is no manger, tying him with a buckle to the wall, and giving him his oats in a haversack.

S E C T. XLIII.

OF WOLVES-TEETH.

THIS happens to horses in the decline of their age; when the gums are worn down, the grinders do not meet one upon another, but grow either outwards or inwards, so that their points prick the gums or tongue, and hinder a horse's feeding. The usual method of cure is, to open the horse's mouth with the upset, and with a chissel and mallet strike off those sharp edges, and afterwards file them down smooth; but it is much safer to make use of a well-tempered file, though it will take up a little more time.

S E C T. XLIV.

OF GIGS, BLADDERS, AND OTHER DISEASES OF THE MOUTH.

THE mouths of horses are subject to several infirmities, which by reason of the softness and sponginess of the parts, are often troublesome,

and cannot be easily removed without the fire, or some corrosive medicine. The gigs and bladders for the most part grow out on the inside of the lips, and sometimes towards the palate, but those of the lips are the largest. The usual method of cure is, by flitting them open, and discharging the matter, afterwards washing them with salt and vinegar. Sometimes a horse is wounded by a rusty bit, and by several other accidents; all which, either from neglect or an ill disposition in the blood, will create those sort of ulcers the farriers call *cankers*. In such cases, the best way is to make use of a small round searing-iron, moderately heated, which may be introduced through a brass pipe to defend it from touching any other part; and when the eschar falls off, it may be touched now and then with a sponge dipped in copperas-water until it is cured.

The falling down of the palate, or, more properly, the relaxation and swelling of the uvula, is also a disease to which horses are subject upon catching cold; though we do not find it much taken notice of by many farriers. The cure is by blowing pepper upon it, or touching it with a feather dipped in the blue eye-water, or spirit of sal ammoniac, &c.

S E C T.

S E C T. XLV.

OF THE POLL-EVIL.

THIS is an impostume, and arises on the poll, and, for the most part, is caused by the fretting of a new halter, collar, &c. At first it requires no other method of cure than what is common to other boils, inflamed tumours, &c. by ripening it and bringing it to matter, but sometimes it degenerates to a sinous ulcer, though that be generally owing to want of skill.

There is a small sinus under the noll-bone, where the matter is apt to lodge, unless care be taken to keep the part firm with bandage; but instead of that, the farriers generally thrust in a long tent, which raises the flesh, and opens a way into the sinus, and by this means an ulcer is created where there needs be none; all therefore that is farther necessary on this head, is to caution the practitioner against such ill methods, and if the tumour has a very large cavity within it, it is much better to lay it somewhat open, than to thrust a foreign substance into it; and if it acquires an ulcerous disposition, it must be treated as such. See the cure of tumours upon the glands in the Section of the Strangles.

S E C T. XLVI.

OF HURTS AND BRUISES IN THE WITHERS, &c.

HORSES are very often hurt or wrung in the withers by the biting of other horses, or unfit saddles, especially when the bows are too wide, for by that means they bruise the flesh against the second and third vertebræ of the back, which form that prominence that rises about the shoulders; when the swelling is moderate the usual method is, to wash the part with salt and water, or to apply horse-dung, or salt and black-sope mixed together, which very often succeeds; any restraining charge, as bole and vinegar with whites of eggs, has the same effect, though in a different manner; as also the whites of eggs beat up into a foam with a piece of alum; this is very much commended. Sometimes the hair is rubbed off, and the part becomes galled, in which case nothing is preferable to rectified spirit of wine, or brandy, which ought to be used often, covering the part with a linen cloth dipped in bees-wax and a little oil, melted together, to keep the dirt from it, and defend it from the air. But when the bruise happens to be violent, an impo-
tumation may certainly be expected, which must
be

be managed according to the directions laid down in the cure of the Strangles. And as soon as the matter is discharged, and the swelling fallen, so that the part can bear to be bound, a strap may be fixed to the breast-cloth, which may pass between his fore-legs, and be fastened to his surcingle, which in a great measure will answer the end of bandage, by keeping the parts firm.

Solleyfell complains of the ill accidents attending the disorders in the withers, and it is no wonder; for that author was always too busy with tents, and but little acquainted with the true usage of bandage. A tent in the withers is very dangerous, and in all parts of the back and loins, for by them the flesh is raised, as was observed in the preceding Section, and the matter becomes collected among the spines, whereby sinous and fistulous ulcers are formed, which for the most part prove incurable.

As to those ailments that proceed from the bite of another horse, whether it be on the withers, the neck, or any other part of the body, they must be often bathed with spirit of wine; and dressed with turpentine and the yolks of eggs, as all other wounds or impostumes, and if the bruise cause a small mortification and deadness in the part, which sometimes happens, it may be dressed with *Ægyptiacum*; and if it proves obstinate, the actual cautery may be made use of to bring it

to digestion, after which it may be managed as a simple wound or ulcer.

S E C T. XLVII.

OF A N A V E L - G A L L, &c.

THIS is seated on the top of the spine, opposite to the navel, from whence it has its name, and is generally caused by a bad saddle pinching a horse behind, which being neglected, turns to a foul fungous excrescence, and sometimes after a long continuance to a sinous and fistulous ulcer; sometimes it looks like a hardened brown jelly, and sometimes black and mortified. While there is moisture and sensibility in the part, an ointment may be applied of quicksilver and turpentine, viz. an ounce of quicksilver to every two ounces of turpentine, rubbed in a mortar till they be well incorporated, and then spread upon hurds or flax on each side of the spine; over the swelling may be laid smooth dry pledgets of hurds, or bolsters of flaxen cloth, which may be girt round with a fursingle. But if the sore be dead and lifeless, a good sharp razor or knife may be made use of to cut it to the quick, and then let it be

be dressed according to the directions laid down in the cure of wounds, &c.

A fistfast proceeds also from a saddle-gall, and is another of the accidents that happen to the spine; it is dry and horny, and may be cured by anointing it first with oil of bays until it grows soft, and then by dressing it with quicksilver and turpentine, as before directed, which alone will make a cure, especially if the horny substance be gently scarified in some places.

S E C T. XLVIII.

OF A SHOULDER-WRENCH, SHOULDER-PIGHT,
AND SHOULDER-SPLAIT.

TO understand the nature of these infirmities, it will be necessary to remember that the blade-bone of the shoulder is fixed to the body, not by articulation or jointing, but by apposition, being laid to the ribs, and fastened by the muscles which lie under and above it; so when a horse happens to receive a blow or strain in the shoulder, the tendons of those muscles are stretched and relaxed, and when that is violent, it is called a *shoulder-splait*, and becomes more or less hardy.

Every

Every one sufficiently knows that a slip, false-step, or any undue position of a horse's leg, will strain and weaken the shoulder, by stretching those ligaments; and sometimes the shoulder is affected by a hurt or bruise on the withers; the reason of which may be easily enough conceived by any one who will examine into the structure of these parts; but when the accident proves not so violent as to shew a looseness and swelling, it is not easily discerned whether the lameness be in the shoulder, foot, or any other joint. The best judges have therefore in all such cases, thought it proper to examine all parts from the shoulder downwards, and even to unshoe the horse, that they may know certainly where to apply their remedies. But the infirmities of the shoulder may be distinguished from those of the feet, by having a horse put to exercise; for if the lameness be in the feet, he will halt most when he is ridden; but if it be in the shoulder, the warmer he grows the less he will halt; and if the wrench be violent, he will be apt to cast his leg outwards, forming a circle as he goes. But if none of these signs appear in his gait, the surest way is to turn him short on the lame side, for that tries the muscles the most of any thing, so that if it be in his shoulder, he will set his foot on the ground warily, and endeavour to favour it.

In

In order to the cure, a distinction ought to be made between an old lameness and a hurt that is newly received; for in a fresh strain, the first intention is to apply such things as are proper to allay the heat and inflammation, and prevent a too great afflux of matter to the part; whereas, in an old lameness, those things are chiefly made use of, that attenuate and render the superfluous humours fit to pass through the pores; and therefore as soon as you perceive your horse lamed in the shoulder, by a fall or any other accident, after he has been bled on the opposite side, a cold restraining charge may be applied of vinegar, bole, extract of saturn, and the whites of eggs. Verjuice may be used instead of vinegar, on the road, which may be had at any farm-house, for the sooner a cold application is made the better. The part ought, in the beginning, to be refreshed three or four times a day with a sponge dipped in vinegar and bole, after that the following plaster may be applied:

Take of dragons-blood, in powder, two ounces;
Burgundy pitch, four ounces; rosin, three
ounces; melt the pitch and rosin together, then
stir in the dragons-blood.

Spread this upon the horse's shoulder before it grows cold, and put fine flocks of the colour of the horse all over it.

When the lameness happens to be of an old standing, the following oils will be of great service :

Take train oil, two pounds ; oil of vitriol, two ounces ; mix them carefully together, then add a pint of the strongest spirit of wine and camphor, and four ounces of oil of turpentine.

Some of this composition may be rubbed very well into the place affected two or three times a day ; and though it is not the most elegant or dearest preparation, yet it will be found much more effectual than those oils which are twenty times as costly.

Solleyfell recommends the ointment of Montpellier as an excellent remedy in all strains in the shoulders, &c. It is composed of the ointment of roses, marsh-mallows, pepleon, and honey, of each equal quantities. The oils of turpentine, earth-worms, petre, St. John's-wort, and nerve oil, bears-grease, horse-grease, mules-grease, deer-fuet, badgers-grease, and many such things, are also used in the same intention. But if the lameness does not yield to these things, recourse may
be

be had to rowelling, or to the fire, but the last is preferable, and less painful than the usual method of rowelling, by bruising and blowing up the shoulder.

Therefore with a hot iron make a circle the breadth of a trencher round the joint, and within the whole circle pierce the shin, leaving about an inch between the holes, and to each apply yellow wax and rosin melted together, until the eschars fall off, and then dress them every day with turpentine and honey, applying plasters as directed until the sores are dried up.

Some advise swimming a horse for a shoulder-splait, from an opinion of the joint being out, but if it was really so, he must swim with three legs, which is almost as impossible as for a door to move without hinges. Yet swimming is not always unsuccessful, and in all old lamenesses it becomes serviceable, in the same manner as a cold-bath, by helping perspiration, and giving a more lively motion to the obstructed matter, and therefore the morning is the most proper time, because the water is then the coldest, and it should be a continued custom for some time to do effectual service.

In all respects the horse should be put to no kind of labour, neither ought any one to ride him, for a weight upon his back must needs add to the infirmity, as the greatest stress lies upon the

shoulders ; it will be very proper for him to be walked out every day, when the weather is favourable, and his exercise may be increased as his shoulder recovers strength, but no patten shoes to be made use of.

S E C T. XLIX.

OF A SWAYED BACK, AND STRAINS OF THE HIPS.

THIS disease is a pain and weakness in the reins, caused by a fall, carrying of some heavy burthen, or some other violent accident, and sometimes the horse is also hurt inwardly, which brings him into the greatest disorder imaginable. We think there is no such thing as a broken back, in the sense farriers generally mean, otherwise the horse could not survive it many minutes ; neither is it very probable that the spines or processes of the vertebræ or back-bone should be often broke, unless the horse be very poor and lean ; these things, for the most part, are very well guarded by the thick muscles of the back, and therefore, by a swaying of the back, is properly to be understood a stretching and relaxation of the muscles and ligaments of those parts ; and when the hurt is more inward, the disorder must then consist in the stretching of the large blood-vessels,

veffels, &c. but in all fuch cafes the farrier ought, in his cure, to treat a horfe as if he was hurt both inwardly and outwardly, as there is a conftant fympathy between both.

The firft thing therefore to be done is, take a plentiful deal of blood from the neck, after which the cold charge and the other remedies prefcribed in the preceding Section ought to be applied; inwardly thofe things that are proper to promote fweat, fuch as fweating in a dunghill, if the common remedies fail; his diet muft be opening, and all imaginable care taken to keep down a fever. He ought to be girt pretty firm over his reins, yet not fo as to hinder the motion of his flanks; he ought alfo to be hung up or kept in a fteady pofture; but if the weaknefs continues, you may proceed to give the fire, which muft be done by piercing the fkin on the mufcles that lie on each fide of the fpine, avoiding as much as poffible to burn him near the flanks, otherwife it will be apt to create a violent fwelling in the fheath, which would very readily bring on a fever.

The ftrains in the hips are to be accounted for in the fame manner as thofe of the back and foulders, only they are not fo apt to create a fever, as the fwaying of the back. Sometimes the round-head of the thigh-bone is by the violence of the accident thruft out of its focket, and then a horfe is faid to be *hip-shot*; but if it is not reduced immediately

immediately he will be irrecoverably lame. The cure consists in the same applications that are proper for a shoulder-splait.

S E C T. L.

OF BONES BROKEN AND OUT OF JOINT.

THE replacing of bones that are disjointed is a very unsuccessful operation, insomuch that we have few or no horses ever becoming serviceable after their bones have been misplaced; but broken bones have often been recovered, and the famous Solleyfell gives an instance of a horse that had a fractured bone with a large wound in the flesh; and of a mule that had a fracture in his leg, both which were cured by one who was neither a surgeon nor farrier; and Ruini and other Italian authors have laid down a method of cure for all such accidents, though the success must be very much owing to the goodness of a horse's constitution and sagacity, there being some who will favour any infirmity or lameness more than others. When a bone is fractured the horse ought to be raised in a sling, and while one holds the member with both hands, three or four inches above the fractured part, another must extend it and draw it quite straight, after which it is to be bathed with
vinegar

vinegar and bole, and a thick towel dipped in the same liquor laid smooth round it; then with a roller, about two inches broad, make several rounds upon the fractured part both above and below it, making your turnings even, that the splinters may lie on close; after which apply two or three splinters of wood wrapped up in a linen cloth or hurds, always taking care not to let any of their ends press upon the sinews, and above them make several turns with a long roller upwards and downwards, until the splinters are firm and immoveable.

The leg must be often bathed above and below the dressing with strong vinegar and goulard, or warm leys of wine, especially for the first fortnight, the horse kept to a laxative diet, and the dressing kept on for the space of forty days, making it tight as often as it begins to turn slack. If the horse is inclinable to favour his infirmity, he will recover without much trouble, but if it be otherwise, it will be proper to keep him constantly in a sling, suffering the fractured member just to touch the ground.

This is the proper method for all fractures in legs and pasterns; but in cases where other bones are broken, the greatest part must be left to nature, who will make a re-union in her own way, though it may not be without some deformity; but we can expect no great assistance, either from art or nature, when a fracture happens on a large joint,

joint, or very near it, or when a bone is much shivered and splintered.

The usual method to reduce bones that are displaced, is by laying the horse on a soft place, and putting four strong pasterns on his feet, drawing him from the ground, so as his whole weight may in a great measure rest upon the disjointed member; we have seen two horses served in this manner for what is vulgarly called a dislocation in the shoulder, but neither of them succeeded.

Some use a method which is much more cruel, they tie one end of a leather thong about the horse's pastern, and the other to a yielding shrub, and then by whipping him, make him strain with all his force, till the bone returned to its proper place, but this method is not only dangerous but seldom successful.

S E C T. LI.

OF HURTS IN THE STIFLE.

THESE kinds of accidents are occasioned by strains or blows on the stifle-bone, which is the knee-pan of a horse; sometimes the ligaments which cover the bone are so much relaxed that it becomes loose, moving upwards, downwards,

wards, and sideways, by the touch of your hand, and the horse going downright lame is said to be *stifled*; but it is a general mistake in authors to fancy the bone is misplaced, that being merely impossible, unless the broad ligaments were cut, and then indeed it might burst out of its place.

The cure consists in the application of those things that are proper to strengthen the relaxed ligaments; if the sprain be new, vinegar and bole, with a proper quantity of Goulard's extract, ought to be made use of, and after that a plaster made of pitch, myrrh, olibanum, dragons-blood, &c. The pitch must be melted with a little hogs-lard, and the other ingredients made into powder, and stirred into it while it is warm, after which it may be poured upon the stifling place, covering it with flocks or stuffings of old saddles. The horse ought not to be put to any hard exercise, but may go to grass, or be led abroad for the space of an hour every day, until he is able to bear greater fatigue.

S E C T. LII.

OF THE BONE-SPAVIN.

THIS is a hard bony excrescence growing on the inside of the hough, not far from the elbow, and is generated of the matter which nourishes the bones and ligaments. Some horses are foaled with this imperfection, but it proceeds for the most part from straining while a horse is too young to bear violent fatigue, which in process of time causes lameness.

The main intention in the cure is to remove the excrescences, but this is hardly practicable when it adheres to the bone as a part of its substance, but only when it lies as an appendage; in which case, it may be removed by a dextrous application of the fire, or by the use of caustic ointments; for these, by bringing a flux of matter, and a constant moisture into the part, will by degrees loosen that hard substance from its adhesion, so that it may be easily taken off, and for this purpose we recommend the following :

Take corrosive sublimate mercury levigated, half
an ounce; æthiops-mineral, six ounces; Spanish flies, and euphorbium, in powder, of each
ten

ten drachms; and with about half a pound of hogs-lard, mix them well together in a mortar for use.

The method of applying this ointment is, first to rub the part with a piece of round smooth stick, and then lay over it a sticking-plaster to guard the rest of the hough; this must be made of rosin, common pitch, or Burgundy pitch, spread on a thick piece of leather, having a hole cut in the middle, that the tumour may come through it, upon which the ointment is to be applied, the hair being first shaved away, over which must be laid a pledget of clean hurds, fastened with an easy bandage round the hough, or another sticking plaster over all. This ointment will at first draw out a thin water, but after two or three days application, it will form an eschar, which may be scarified with a fleam or lancet, continuing the application every other day, until the bone becomes loose, or its substance dissolves; after it is removed, the ulcer must be dressed with honey of roses, and tincture of myrrh warm, then healed with basilicon mixed with turpentine, &c.

In giving the fire, Solleyfell advises to fear the large vein above and below the thigh, from an opinion that the tumour is fed by it; but it is plainly otherwise, the office of that vein being only to take up and carry back that portion of

blood which is more than necessary for the nourishment of those parts through which it passes, and when that conduit is once stopped, there must be a greater quantity of blood and nourishment retained in those parts, at least for some time, than before; wherefore such an effect must be owing, not to an abatement of humours, but to an abundant moisture derived from a greater quantity of blood, whereby the bone may be more easily separated, as we have already observed; but if it has this good effect in removing a bone spavin, the loss of so large a vessel may easily be of worse consequence in other respects, as will be shewn hereafter.

S E C T. LIII.

OF THE STRING-HALT.

THE string-halt is an involuntary and convulsive motion of the muscles, which extend or bend the hough; when it seizes the outside muscles, the horse straddles and throws his legs outwards; but when the inside muscles are affected, his legs are twitched up to his belly, sometimes it is only in one leg, sometimes in both; but these things are so well known that we need not insist on them. It generally proceeds from some strain

strain or blow, for whatever creates a more than ordinary pain in any particular muscle belonging to the hough, may cause a too great derivation of blood and spirits, whereby such an habitual contraction may be produced.

The cure is difficult and rarely attended with success, though, in the beginning, a string-halt may be removed with good rubbing and the use of fomentations, with daily but moderate exercise; for by this means the blood and spirits may be equally derived into the diseased muscle, and its antagonist. The last refuge is usually the fire, which has been known to answer, at least so far as to prevent absolute lameness.

S E C T. LIV.

OF THE BLOOD-SPAVIN.

THIS is a dilatation and swelling of the master vein on the inside of the hough, and is justly compared, by Solleyfell, to a varix in men; its cure is performed by taking up that part of the vein which forms the tumour, and healing the tumour with proper digestives and good bandage, some think it sufficient to tie a ligature above the swelling, and then make an aperture into the vein, letting it bleed until the swelling fall, after which
unbind

unbind the ligature and apply a restraining charge of whites of eggs, bole, and vinegar, with a firm bandage ; but this is not so certain, especially when the spavin is formed under the great joint of the hough, and where the vein takes a winding turn round it, in which case it will be apt to grow again as soon as the bandage is removed ; but a cold charge is very necessary all round the joint when the vein is taken up, to prevent the swelling that must follow upon the operation.

S E C T. LV.

OF MALENDERS AND SELENDERS.

THE malenders are chops or chinks on the bending of the knee, which discharge a sharp indigested matter, causing pain and making the horse go lame before ; as the selenders which appear on the bending of the hough, make him go lame behind. They both proceed from the same cause, and are sometimes accompanied with a scab, and with a constant starting and bristling of the hairs.

The proper method to cure these infirmities is, in the first place, to wash them with a lather of black-sope, warm, or with cold chamber-ley, after which apply a pultice of the roots of marsh-mallows

mallows and linfeeds, softened with linfeed-oil; and as often as it is applied, you may mix half an ounce of camphor, in powder, tying it on with a roller; this may be continued till the scabs fall off, and the fores grow clean. Then take turpentine and quicksilver, equal parts, stirring them in a mortar till they are well incorporated; spread a pledget with this ointment and apply it to the fore, tying it on as above directed, and renew the dressing every day until the cure is performed, observing also constantly to wash all the chinks with brandy or spirit of wine.

S E C T. LVI.

OF THE HOUGH-BONE.

THIS is a hard tumour that grows on the elbow of the hough, and is finewy, like the matter which covers that bone; it proceeds from a strain or blow, and when it happens to be of long continuance it becomes difficult and hard to be cured, the substance of the swelling being like hardened glue.

In the beginning take the ointment of marshmallows, and oil of amber, as directed in a preceding Section against strains in the shoulder, and rub it into the part, holding a hot bar of iron very close,

close, that it may penetrate the sooner into the place affected, taking care to fetter the horse so as he may not strike; if it does not yield to this remedy, take a sufficient quantity of the diachylon with the gums, which may be had at any chymist's; melt it in a pipkin, and pour it warm upon the top of the hough, renewing it as often as it begins to waste. If the swelling increases and turns to an impostume, it may be ripened with cataplasms, and opened with a hot iron, piercing from below upwards, and dressed with the common digestive of turpentine and honey, or the yolks of eggs, with a mixture of spirits of wine, making a firm bandage over the part, and by these means it will be cured; but in case of a continued and obstinate hardness, you must proceed to the fire, first penetrating a little way into the body of the tumour, with a round iron, and drawing from thence several superficial lines, which may be dressed according to the method already laid down for performing that operation.

S E C T.

S E C T. LVII.

O F T H E C U R B.

THIS is a swelling on the finewy parts of the leg, a little below the elbow of the hough, but somewhat higher than the spavin on the inside, and is generated of the same matter that nourishes the tendon and ligaments; it is broader and higher at its upper part than below, and sometimes causes the horse to halt by hindering the action of the joint. It happens chiefly to draught-horses, and is hardly cureable by any other means than by the actual cautery; however the medicines directed in the last Section may first be applied, and renewed as necessity may require.

We have not the least doubt but it will be of the utmost service in removing all hard swellings on the bones or finews, by discussing them; sometimes it has the effect of a suppurative plaster, and will cause an impostumation, which equally answers the end, as these sorts of tumours often terminate that way with good success.

S E C T. LVIII.

O F A J A R D O N.

THIS is a hard callous tumour, a little below the bending of the ham on the outside; it is at first scarcely discernible, but in time causes the horse to halt, and grows so painful as to make him pine away and become light-bellied; but it happens most frequently to managed horses, especially those who have been kept too much on their haunches. The cure may be first attempted by applying mercurial plaster, as above directed, but if it proves obstinate, it must be treated as a bone-spavin, &c.

S E C T. LIX.

O F S P L E N T S, O S L E T S. &c.

A Splent is a hard callous substance, which adheres to the inside of the shank-bone; when there is but one it is called a *single splent*, but when there is another opposite to it on the outside of the shank-bone, it is then called a *pegged* or *pinned splent*.

The reason of all such excrescences may be easily enough apprehended, by those who will take the

the pains to examine the shank-bone of any horse after the flesh is scraped off, where they may observe two appendages growing on the shank-bone, which are to be met with in all horses that are young, though the seam by which these bones are joined to the shank is in some old horses quite obliterate and worn out, except in the middle; each of these appendages resembles a bodkin, being broad at top and narrow at bottom, and are joined to the shank by apposition, and fastened by a gummy matter not unlike glue.

Therefore if a young horse be pressed with an extraordinary weight towards the shoulders, before these bones are properly cemented and put together, but especially when he goes down hill with a burthen, or a heavy man upon his back, it bears so hard upon his fore-legs, that it causes these bony appendages to give way and suffer a distortion, and though the horse does not always grow lame upon it immediately, yet it brings a redundancy of this glutinous matter, which ouzes from between the bones, on the inside of the shank, where there is a little hollowness and hardness under the periosteum, like a gum which issues from a wounded tree, and is thus formed into a splent. But when the distortion is violent, or if the horse be of a tender delicate make, the afflux of the matter will be the greater, so that it ouzes through the opposite side also, and forms a pegged or thorough-splent, which looks as if a wedge was

struck quite through the bone; sometimes a double-splent is formed, which is called by the French a *fuzee*, and this happens when there is a fresh afflux of matter upon the splent, that is already begun like the lays upon an icicle, by the running down of fresh water upon it. This last sort causes a very great deformity, and is therefore easily perceptible.

Most of these swellings make their first appearance a pretty way below the knee, where the cleft between the bones is the widest, which is very natural, and in some cases, but especially when they are of long continuance, they not only ascend to the knee, but go a good way down the shank, and sometimes spread backwards towards the master-finew.

Osslets are little hard substances that arise among the small bones of the knee on the inside; they grow out of the gummy substance which produces splents, and like them proceed from the same cause, viz. the straining of a horse while he is young, and before his joints be well knit, and from hence also we may understand the nature of all those hard tumours already treated of, which grow near the joints, whether they be spavins, jardons, curbs, or any other kind; their chief difference consisting of their situation, being all of them formed of a matter which in time grows as hard as the bone itself; and this is the reason why they cannot be moved, but by things that are of
the

the greatest efficacy. Notwithstanding if they be discovered before they acquire such a degree of hardness, they may be made to yield to less powerful remedies than what we are sometimes constrained to make use of.

As to splents, which are our present business, it is very plain from what has been said concerning their origin and growth, if the infirmity could be discovered at first, they might be kept down and wholly prevented by the application of a firm bandage upon the shank; for by it, not only the bones would be constantly kept close together, but the periosteum and flesh united to the bones, so that there would be no room for any superfluous matter to lodge betwixt them; but these are seldom taken notice of until they bring a deformity along with them, or a halting; they must therefore be treated as other hard substances of the like nature. If the horse be young, and the splent not of very old standing, an attempt is to be made to dissolve it; and for that purpose, nothing is preferable to the mercurial plaster, for which see Index. It must be applied spread on leather, and continued a considerable time, shaving away the hair as often as it is renewed; but if it is not to be removed without suppuration, then rub it soundly with the blood-slick; and after its substance has been thus bruised, it may be brought to an impostume, by applying the mucilage plaster, or some good pultice made of the roots of lilies,

lilies, marsh-mallows, bean-flower, fenugreek, and linseed powder, and such like, with a sufficient quantity of hogs-lard, and then the matter may be discharged as from a common boil or impostume, by making a streight incision upon it from below upwards. But if a more expeditious method be required, the caustic ointment inserted before may be applied, with the necessary precautions, observing farther not to continue it longer than an eschar is formed by it; or the following method may be complied with, which is very easy:

Shave the hair, knock, rub, and soften the splent, then take a piece of the rind of bacon not very fat, and lay it on the part with fat side outwards, afterwards applying a flat cautery, or red hot iron of the breadth of a shilling, holding it upon the skin, and in the mean time order another iron to be heated, which must be applied to another part of the skin, but still over the splent; continue after the same manner, till the swelling be dissolved, then lay a plaster over it, and shavings of cloth over that, taking care that the horse do not bite it off.

One thing is very material after the removal of a splent, and that is, to keep a firm bandage over the part for some time, to prevent its return; for unless the parts be kept very close, the same matter which breeds it at first, will be apt to engender it again. When the bone happens to be laid bare,

bare, it must be treated according to the method laid down in the cure of wounds.

The cure of a splent is hardly to be attempted if the horse be grown old, for the matter becomes then so hard, that there is no way to make it yield without running a very great hazard, neither is it curable, when the disease is in the bone; for though this is sometimes mistaken for a splent, yet it is for the most part no other than what proceeds from a caries or an ulcer in the bone, which in time has been healed, and grows into a flinty substance. This may be known by its bunching out and unevenness, and by its hardness. The oslets are more difficult and hard to be cured than splents, because of their situation among the small bones which are in the joints, and are therefore only to be attempted by giving the fire, though even that is not always attended with success; but these are rarely to be met with.

S E C T. LX.

OF A RING-BONE.

THIS is a hard callous substance, which grows in the hollow circle of the little pastern, immediately above the coronet; it is sometimes hereditary, but more frequently occasioned by a strain,

strain, and is bred of the like matter with the other hard substances we have treated of in the preceding Sections; sometimes it goes quite round like a ring, from whence it has obtained the name of *ring-bone*.

The usual method of taking it off, is by the application of strong caustic medicines, such as quick-lime, arsenic, realgar, and the like, the hair being first shaved and the hard substance scarified; some use unslacked lime in powder, and apply it pretty thick over the part, fastening it with a cloth, and then ride the horse into the water, letting him stand some time in it, by which means the substance of the ring-bone is destroyed, and there is nothing farther necessary than to heal up the ulcer. This is a very expeditious way, but whoever tries it had need be careful to guard the coronet, or else it will be very apt to cause a gathering of matter under the hoof, which would readily corrode the coffin-bone. There are others who cut the ring-bone straight downwards to the coronet in several places, and put in rowels, which by forming ulcers, and bringing a rottenness and corruption all about the part, cause the excrescences to loosen or melt away.

Solleyell observes, that some ring-bones cannot be removed without giving the fire, nor does that always succeed, but when the sole is also taken out, and the flesh laid open; for by this, there is a very great moisture derived into the
part,

part, and at the same time, room given for the matter to discharge itself, which might otherwise loosen the coronet by being detained in the hollow circle of the pastern: the present farriers' method is this, they take out the sole, and after the second dressing, cut the skin in several places above the coronet, so as to lay the ring-bone bare; then with a hot knife cut the ring-bone through, till they reach the bottom, not all at once, but repeating the strokes gently; in the mean time make a cleft in the crust, and keep it open by applying into it pledgets dipped in a mixture of tar and turpentine, laying the same dressing to all the seared parts, until the eschars fall off.

It is very plain that a ring-bone may be removed by any of the preceding methods, when rightly managed, and the only thing that makes them unsuccessful is, when a horse happens to be old or diseased, or when it chances to be a natural imperfection; but the most common impediments are the want of skill to heal up the ulcers, to prevent the matter getting under the hough, likewise to keep down the growth of new excrescences which are apt to arise on those parts; therefore as soon as the pain and anguish are over, the sores should be dressed with *Ægyptiacum*, or some other cleansing ointment, and all the hollow parts round the pastern filled with tow dipped in vitriol-water, or rather spirit of wine and camphor; and over all a

bandage as firm as the horse can bear, reaching from beneath the coronet almost to the knee, this being the true method to prevent the ill consequences that may arise in the cure, &c.

S E C T. LXI.

OF WIND - GALLS.

WIND-GALLS are soft, yielding, flatulent tumours, seated on either side of the footlock-joint, &c. they are caused by violent straining, or by a horse standing on a sloping floor, and by several other accidents, as blows, and strokes from other horses, &c.

The usual method of cure is by opening them with a fleam, to let out the gummy matter, and apply to the orifice a little plaster of rosin, pitch, mastic, and oil of bays, with the white of an egg; and there are some who mix with plasters of this kind, verdegris and turpentine, which are not amiss; but the ointment made of equal parts of quicksilver and turpentine will answer the end much better, especially if with it be mixed a small quantity of verdegris, and the white of an egg to make it stick fast to the part. The hollow spaces on each side of the sinew ought to be filled with hurds, moistened in warm spirit of wine, good
bandage

bandage applied over all the footlock, to prevent their growing again.

To wind-galls that are large, emollient and softening medicines are to be made use of, as pultices made of mallows, marsh-mallows, &c. or the mucilage plaster of diachylon, with the gums spread thick upon leather. Or the following charge may be applied :

Take gum-ammoniac, two ounces, dissolved in a pint of vinegar, with four ounces of Venice turpentine ; after boiling it half an hour, take it from the fire, and stir into it in powder dragons-blood and French bole, of each four ounces ; some of this charge should be applied while it is hot.

If recourse may be had to caustic medicines, an ointment may be made with quicksilver and turpentine, of each an ounce ; euphorbium and Spanish flies, in powder, of each one drachm ; this may be applied to the wind-gall, taking care to guard the great finew, and the neighbouring parts, as directed in a preceding Section.

The horse must always be tied up, to hinder him from biting it off ; but if this causes too great an inflammation, as may happen to some delicate horses, the ointment may be made weaker by mixing a greater quantity of turpentine with it.

S E C T. LXII.

OF A SINEW - SPRAIN, &c.

IF the maſter finew above the hough, or that above the footlock, or any other finews or ligaments in thoſe parts, are ſtrained or relaxed, they cauſe intolerable pain and lameneſs; and when violent, will ſometimes bring on a fever, and endanger a mortification, unleſs there be extraordinary care taken and timely applications made; therefore as ſoon as you obſerve your horſe ſtrained in any of thoſe parts, which if it be in the finew, may be known by its being unbent and relaxed, and by the ſwelling and inflammation; you muſt apply a cold charge, or immediately rub in Goulard's extract, ſuch as has been directed for ſtrains in the ſhoulder, &c. after that a plaſter to ſtrengthen the part; but if it be ſo violent as to create ſome untoward ſymptoms, making the horſe ſick and forſake his food, you muſt, in that caſe, take a good quantity of blood from the neck, and bathe all his leg two or three times a day with woollen cloths, wrung out of a hot fomentation, made of Goulard's vegeto-mineral, for which ſee Appendix. It will ſtrengthen and cool the nervous parts, after which you may uſe ſtrong ſpirit of wine, camphorated, keeping it alſo covered with
a cloth,

a cloth dipped in the same, and fastened with an easy bandage. Inwardly may be used all such things as are proper to promote sweat, and ease pain; as soon as the anguish is over, it will be proper to apply a good strengthening charge or plaster of pitch, diachylon, dragons-blood, bole, &c. as has been directed in a preceding Section.

Sometimes the strains in the sinews of the leg and pasterns are occasioned by an attaint or over-reach; we need not therefore bestow any other place in treating of such accidents, but only take notice that when they are accompanied with a wound, they ought to be dressed according to the directions we have already laid down for the cure of wounds, avoiding as much as possible all oily and caustic medicines, excepting when some preternatural excrescences require the use of the latter.

The same manner of treatment is also requisite to a horse that is galled or wounded, by being cast in his halter, applying nothing but clean digestives of tar, turpentine, and honey; making use of spirituous fomentations, with a little quantity of pot-ash boiled in them; together with bandage, as soon as the part is able to bear it; and by these the horse will be easily cured, if he be otherwise in good case, without the pain of corrosive applications, which only become necessary after the
sinews

finews have been relaxed, and rotted with greasy ointments.

S E C T. LXIII.

OF THE GREASE FALLING INTO THE LEGS.

THE distemper that goes under this denomination is a swelling and gourdiness of the legs, which frequently happening to horses after a journey, most people have therefore believed their grease to be melted by hard riding and fallen into their legs, and that which has probably given encouragement to this opinion, is the colour of the matter issuing from the chinks and fores in those parts, when they come to break, somewhat resembling grease, as the substance of the legs is nervous and finewy, whereby the matter which comes from thence is different from what is discharged from the muscular and fleshy parts, where the redness and texture of the blood gives it a different colour and consistency.

It would be very little to our purpose to bestow any time in confuting this ill-grounded opinion, since the contrary must be manifest to those who have the least insight into the œconomy and structure of a horse; we shall therefore proceed to acquaint

quaint the reader that the greafe is, in common with all other fwellings, either a vilcidity and thicknefs of the juices, or a relaxation of the veffels in which thefe juices flow, or both.

If we examine more particularly into the matter, we fhall find that, befides thefe, there are other circumftances which conduce very much to the fwelling, and that is, the fituation and make of the legs.

As to their make, we have already obferved that they are very much compofed of nerves and finews, whole veffels are fo fmall, and laid fo close together that the fluids contained in them may very eafily become obftruded, and by their fituation they are the moft dependent members of the whole body; whereby, according to the doctrine of the circulation, all the juices that are to be returned in the mafs of blood muft afcend upwards in the veins, which in thofe parts have little or nothing to help their progrefs, but the vibrations and fhakings of the arteries, together with the muscular motion. Whereas, on the other hand, the artérial fluid is constantly forwarded into the limbs, not only by its defcent, but by its continual expulfion from the heart, and therefore when once the blood is vitiated and the veffels in the limbs relaxed and weakened, a fwelling muft of confequence be expected, becaufe a greater quantity

tity of fluid is carried downward by the arteries, than in that case can be returned by the veins.

This is agreeable to all the common accidents and causes that usually bring on the distemper, as wounds, bruises, hard and immoderate riding, coming off a journey, or from grass to stand in a stable, full feeding without due exercise, colds and surfeits, debility and weakness, and in fine whatever may otherwise relax and weaken the tone of the fibres; and if we examine into these more particularly, we shall find, that according to the foregoing theory, all of them may very naturally bring on the grease.

For, in the first place, a wound or bruise, or other outward accident in the dependent parts, are seldom attended with any uncommon symptoms, if the horse be otherwise sound, and that due care is taken in the beginning; yet, if a horse in these circumstances be neglected, or his blood be vitiated, it will be apt to bring a swelling in to the legs, as all pain is a stimulus, which draws a more than ordinary flux of humours to the part affected; and if the hurt be near any joint, &c. it causes such a stiffness and aching, that the horse becomes exceeding lame and unable to lie down, so that by continual standing, the legs become swelled and goaded.

Secondly,

Secondly, by immoderate hard riding, the sinews and ligaments are stretched, which is suddenly followed with a stiffness and pain in the joints, whereby, as in the preceding case, a flux of humours is drawn down upon the legs.

Thirdly, when horses are come off a journey, or from grass, to stand in a stable, their legs are apt to turn gourdy and swelled; the first of these cases differs not from the preceding in what relates to the pain and stiffness in the limbs; but it has also in common with the latter, the abrupt breaking off a habit from exercise to rest and full feeding; for while a horse is upon his journey, or at his liberty in the fields, he is every day more or less in motion, whereby the blood is kept in constant agitation; but when he comes to stand still in the stable, a check is put to the motion of the blood in the small vessels of the limbs, while, by an habitual aptitude, it still continues to be equally detached into all parts by the larger arteries, which may easily bring on the grease, even while there is yet no manifest disorder in the blood itself; but in the case of horses newly taken up from grass, there is besides this oftentimes a default in the blood, especially when they are suffered to run abroad till late in the year, for then the grass loses its strength and begets crudities, which render the blood and other juices viscid and thick; and when a horse is taken off his exercise and brought to more generous feeding, a plethora or fullness will

soon happen, whereby it will be more apt to stagnate in the limbs, and cause such heat and itching as must be soon followed with a gourdiness and swelling. The same effect is also produced by colds, surfeits, and sometimes by pampering, and full feeding alone, without the concurrence of other circumstances. And lastly, when a horse has been brought low by sickness, or repeated evacuations, or by any other cause, there follows an universal relaxation of the body, so that the blood and other juices become languid, and are apt to stagnate in those parts that are the most dependent and remote from the heart, not only as the vessels themselves are relaxed and lose their spring, but also from the heaviness and inactivity of the spirits, whereby they become unable to give their assistance in return, and thus the grease is oftentimes complicated with some other distemper.

From what has been said, it will be easy for any one to understand the nature of the grease and the manner of its production; we shall therefore proceed to the cure, wherein the first thing to be regarded is the state and condition of the horse, for if the grease be an attendant on some other sickness, the cure will be so much the more difficult, and it will be in vain to expect a recovery, until the disease is removed which has been the cause of it; and therefore, if the horse be hectic, or has got the yellows, farcy, &c. the methods laid down for the cure of those distempers must be

be followed, at the same time proper applications made outwardly; but if it be produced of the common and ordinary accidents, and that the horse is not otherwise diseased, a method peculiar to that distemper only is to be observed.

In this case, if the horse has been pampered and well fed, the cure ought to be begun by bleeding and purging, to lessen the redundancy of humours, neither should these be too often repeated; but what is wanting that way, had much better be effected by a more spare diet with daily exercise; for in all the circumstances of the grease, there is a tenderness and delicacy, either original or brought on by habit or ill usage, which is also manifest from hence, that young horses are most subject to the grease, as their bodies are loose, soft, and flexible, and their juices naturally viscid and glutinous, which is necessary to the accretion and growth of young animals. Wherefore, when evacuations are too large, or often repeated, instead of being serviceable they often become hurtful, and render the distemper more obstinate, by adding to that weakness and relaxation of body, which is natural to greased horses.

After moderate evacuations, a rowel may be made on the inside of the thigh, or on the belly, which may be continued for a month or longer, if there be occasion, and in the mean time the cinnabar or antimonial alterative balls, &c. ought to be constantly given in the manner we have al-

ready laid down for the cure of the farcy; and while these things are complied with internally, the legs should be frequently rubbed, but not with such hard instruments as some people make use of, a good wisp of hay and a brush being sufficient for that purpose. Baths, and fomentations, such as may draw off the humours by transpiration, or render them fit to return again with the common current, are also to be made use of, and for this purpose, we recommend the following:

Take of oak-bark, in powder, four ounces; wormwood, four handfuls; camomile-flowers, three ounces; boil them all together in three gallons of water, to two gallons, then strain it, and add a quart of strong spirit of wine, and use it pretty warm.

The horse's legs are to be bathed three or four times a day, with woollen cloths wrung out of the hot liquor, and applied as hot as he can bear them; and if they be pretty much inflamed, as happens sometimes when the sinews are affected, a good quantity of ashes of green twigs of vines or walnut-trees, may be boiled in the decoction, adding more water. A good bath or fomentation may be also made, by boiling these ashes alone, or the ashes of any other green wood, in water, when the other ingredients are not easy to be had. The
leys

leys of wine, with a mixture of black-sope, is also very proper to be applied warm; as also cow-dung boiled in vinegar. The following lotion may likewise be made use of with good success :

Take linseed-oil one pint, dissolve an ounce of camphor in the oil, and rub some of it very often into the parts affected.

Or,

Take linseed and fenugreek, in powder, two pounds each; lily-root, one pound; boil them till the lily-root is soft enough to mix with the powders in as much water as is necessary, then mix a pint of the above oil and camphor in it for use.

Spread this on a cloth and apply it warm to the legs, fastening all with a strong roller. This may be continued for a week, renewing it once in two days.

The camphorated spirit of wine alone is very good, viz. an ounce of camphor to every pint of the spirit, and if it be frequently used it will answer in most cases where the swelling is recent and new, and when it has a tendency to break, or even has broke; for by its great warmth, it puts a check to that heat and itching which is often the fore-runner of chops and fores.

Some

Some young horses are so tender and apt to be greased, that even the impressions of the cold air in winter will bring a swelling into their legs, in the same manner as it becomes the cause of kibed heels in children, by constringing and shutting up the pores in those parts, and all the care imaginable can hardly prevent it. No other means need be made use of in these cases except moderate and daily exercise; but in all obstinate cases, a horse should be turned out to grass, where he may have his full liberty.

S E C T. LXIV.

OF THE SORE HEELS.

THESE sores or kibed heels generally shew themselves on the inside of the hind pastern, and in the heels; sometimes they are caused by gravel or dirt wounding those parts, or by travelling in deep roads; but for the most part they proceed from gourdiness, that being the first place where the matter begins to discharge itself. If they proceed only from riding in deep gravelly roads, they may be cured without any farther trouble than keeping them clean, washing them often with chamber-ley or brine; but when they are the effect of the grease, they become somewhat

somewhat more difficult to be removed, and send forth abundance of stinking matter.

While the swelling is large they ought not to be dressed with medicines that dry too fast, but with such as are moderately cleansing; for which purpose two parts of basilicon, with one part of *Ægyptiacum*, will be very proper; bathing all the chinks and sores as often as they are dressed, with spirit of wine and camphor, if there be a great foulness and rottenness; *Ægyptiacum* alone may be made use of, but if that is not sufficient, you may mix with every six ounces of *Ægyptiacum*, white-vitriol and powder of galls, of each half an ounce, with an ounce of favin in powder. As soon as they are become clean, quicksilver and Venice turpentine will perfect a cure. It will always be proper to keep a cloth over your dressings, fixed on a roller, forming a cross on the inside of the pastern, that you may make your turns above and below the joint, by which means its action needs not in the least be hindered.

Care should also be taken to dissipate the swelling, according to the method laid down in the preceding Section, neither ought internals to be omitted, if his constitution be faulty, which may be easily known by the disposition of the sores.

S E C T.

S E C T. LXV.

OF THE PAINS OR WATERY SORES ON THE LEGS
AND PASTERNS.

THESE are caused by a ferous matter ouzing through the pores, which is accompanied with such a sharpness, that it makes the hair fall off from several parts of the legs and pasterns; sometimes it loosens the coronet from the hoof, and sometimes the flesh appears as if it was disjointed from the bones and sinews; wherever the matter runs, it so hardens the skin, that it is apt to break out in cracks and clefts, which discharge abundance of stinking matter, as in the above-mentioned case.

The cure consists chiefly in internals, and in those things that are proper to rectify the blood, as decoctions of box-wood, guaiacum, saffraſas, &c. or the said woods may be rasped and mixed with his oats, and sometimes among dry bran. All the medicines prescribed in the farcy may be made use of in this case; but if the horse be inclinable to a dropſy, which may be known by the yielding of the swelling, and likewise as the fore leg will also be affected, and by the other signs peculiar to that distemper, he must then be treated accordingly; mean while, the medicines in the last Section may be made use of outwardly.

As

As soon as the swelling is abated, and the moisture dried up, it will be very necessary to keep the legs and pasterns rolled up with firm bandage, whereby the parts will not only be kept close, but the influx of fresh matter prevented; for the continuance or frequent returns of those watery eruptions, bring such a looseness into the legs, that they cause a rottenness in the flesh, breed splents, and sometimes, by rotting the tendons, become the cause of quitter-bones, foundering, and other distempers in the feet.

S E C T. LXVI.

OF WARTS, SCRATCHES, RATS-TAILS, AND OTHER EXCRESCENCES ON THE LEGS AND PASTERNS.

THESE are all of the same kind, and are more or less dangerous, as they are situated nearer or at a distance from the large sinews.

Warts may be wasted by touching them now and then with aquafortis, or may be cut off when they are superficial; the scratches are, for the most part, bred of some tendinous substance, and have their roots in or near the tendons, like the corns in men's feet; sometimes they grow so hard that by pressing upon the soft parts, they cause

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3 N

violent

violent pain and inflammation; but when this happens, a good pultice should be applied to ripen the inflammation, which ought to be scarified as near the excrescences as possible; unless the matter spring naturally from the roots of it, which will loosen them so as they may be easily removed by the use of medicines that are moderately corrosive; therefore, to proceed methodically, whenever you observe a moisture and rottenness, you need only apply a lump of rye leven, mixed with vinegar and the juice of garlic, or mustard-seed pounded; and in two or three times application, it will bring out the rottenness. Stamped onions, the roots of marsh-mallows and house-leek, made into a paste with barley or rye flour, has the same effect. The mucilage plaster, or the diachylon with the gum, spread on leather and applied to the part, will also be very serviceable; but if the scratches be hard and lie on the sinews, and thereby occasion pain and inflammation, endangering a fever, in that case it will be proper to take blood from the thigh-vein, and to keep the horse to an opening diet. Then apply the following cataplasm, first shaving away the hair:

Take lily-roots, two pounds; fenugreek and linseed, in powder, of each one pound; boil them till the root is soft enough to be beat into a pulp, then mix them together, to which add
a pint

a pint of sweet oil, wherein an ounce of camphor has been dissolved.

This may be laid over the part, and renewed every day until the heat and inflammation is over, and the excrescences grow soft and loose; after which they may be managed as before directed.

Sometimes scratches are put forth from sinous ulcers which penetrate the bone, in this case you must introduce your probe at the orifice, and try all the different ways it reaches, making incision with a hot knife wherever the part will admit of it; then make your cure according to the directions laid down for the cure of wounds, &c.

Rats-tails are distinguished from the other, because they generally creep from the pastern to the middle of the shank, along the master sinew, or on the side of it, and are so called from the resemblance they bear of the tail of a rat; some are moist and some are dry, and differ only from scratches in their figure and situation, and therefore admit of the same method of cure. If they be hard, they may be loosened or cut off with a hot knife, and afterwards dressed with turpentine, tar, honey, and if necessary the powder of verdigris and white-vitriol may be mixed with it.

The following applications are generally used for the cure of scratches, rat-tails, kibes, &c. about the legs and pasterns :

3 N 2

Take

Take hogs-lard, one pound; white precipitate, levigated, two ounces; spirit of vitriol, half an ounce; mix them very well together for use. Some of this ointment should be well rubbed into the affected places every night and morning.

Orpiment, arsenic, realgar, and such like things, are also made use of in the same intention, in the form of ointments, with honey and hogs-lard; and sometimes into that of a pultice, by a mixture of flour, barley, and rye-meal, and sometimes foot. But these hot burning ingredients are never properly made into the form of a pultice, but are chiefly fit for ointments, which are designed only to cover the excrescences, without touching the neighbouring parts.

Solleyfell recommends a remedy which he calls a *white-honey charge*, for the cure of all these excrescences. It is as follows:

“ Take eighteen large white lily-roots, chop and boil them in two gallons of whey, or barley-water; when the roots begin to grow soft, add the leaves of mallows and marsh-mallows, of each ten handfuls; continuing to boil them till they be all reduced to a perfect mash, pouring in liquor, from time to time, to supply what is evaporated; then pass the ingredients through a hair sieve; take what
passes

passes through the sieve and boil it again with a pound of tallow, and the like quantity of butter, then remove it from the fire ; and when it has done boiling, add honey and common turpentine, of each a pound ; and make the whole into the consistence of a pultice with wheat flour."

This is to be applied cold, in the manner of a pultice, once a day, and it will very much help to soften those excrescences, and take out the heat and anguish wherewith they are often attended. The same author prescribes also an ointment made of crude quicksilver and brimstone, with a double quantity of tallow, which is also very good, but would be much better with equal parts of tallow and turpentine.

S E C T. LXVII.

O F A Q U I T T E R - B O N E.

A Quitter-bone is an impostume between the hoof and coffin-bone, on the upper part, and makes its first appearance by a swelling on the coronet. It proceeds from a blow, a strain, or an over-reach, and sometimes it is caused by a long-continued swelling of the legs, pasterns, &c.

If

If this ulcer be not of a very old standing it may be cured by the application of *Ægyptiacum*, mixed with basilicon or turpentine; but if it be of some continuance, and that probably the matter has, by lodging between the hoof and coffin-bone, rotted the coffin-bone, or the tendons of the muscles that pass between that bone and the hoof, you must in that case open the tumour with a razor or other sharp instrument, cutting away all that is corrupted and rotten, either under the hoof or any part of the foot, and to make way for your operation, you ought to rasp down some part of the hoof. If any bits remain that you cannot easily come at with your instrument, you must bring them off by applying dossils of flax, dipped in *Ægyptiacum* made warm; which for the most part will suffice; laying over all pledgets soaked in hot tar. If you find some difficulty in separating that gristly substance, you may mix equal parts of myrrh, aloes, and sublimate, all in fine powder, making it into a paste with a sufficient quantity of spirit of wine, and apply it to the remaining gristle, laying over it pledgets soaked in hot tar, as before directed; as soon as it is freed from all the superfluous substances, and looks clean, you may heal up the ulcer with tar, turpentine, and hogs-lard; washing it now and then with copperas and vitriol-water.

S E C T.

S E C T. LXVIII.

OF FOUNDERING IN THE FEET.

THIS is an excessive pain in the feet, whereby the horse being scarcely able to touch the ground, draws himself in a heap; upon which account most people have constantly been of opinion, that a horse in this condition must also be foundered in his body, and what is vulgarly called *grease-molten*, which immediately falling downwards, causes that lameness, and therefore in their cure have made applications to the back and loins, as well as to the feet.

To describe the coffin-bone, we desire to observe as follows, viz.

Its substance is fungous or spongy, having innumerable little holes piercing through its sides for the passage of the vessels, as also a great many small sinews, whereunto are implanted the ends of the tendons of the muscles that move the lower part of the leg and foot, whose fibres being at any time affected, either by bruises, ill shoeing, standing in the water after hard riding, while the horse is hot, or but standing still in the stable for several days without having the feet stopped up, and the like; we say the tendinous fibres being affected by these or other means, cause the horse to have such great pain in his feet, that he can
scarce

scarce endure to tread upon them, which lameness we call a *founder*.

This distemper is so much the harder to cure, by reason of the fibres lying so far out of reach, most of them running on the upper side of the bone (betwixt it and the hoof) and not to its bottom, so that the hoof growing upon the sides, as the sole doth at the bottom, there is great hazard; but we shall miss effecting a cure if we only pull the sole out, and do not cut part of the hoof off also: this is not our bare opinion, but also the experience of those who have had good success by following our method in curing foundered horses, who by raising the hoof from the coronet or top of it, to the very bottom, in five or six places, until they have made the blood come, and then applying their remedies to those places, have made such horses sound, which the drawing out of their soles would not have cured.

It is very plain, when the infirmity lies in the tendinous fibres, which are inserted into the upper part of the coffin-bone, it cannot readily be removed by taking out the sole, as we have already observed; therefore the method we have laid down ought, in all obstinate cases, to be complied with, as the most certain; and when rightly managed may, for the most part, be attended with good success. Nothing can be more properly applied to the wounds made in the hoof than tar, turpentine, and hogs-lard, melted together, with a fourth
part

part of spirit of wine, soaking pledgets of clean hurds in this mixture, and laying them pretty warm upon the rasures or chinks; omitting two days after the first dressing, continue afterwards to make your applications every day, until the vacant spaces of the hoof are filled up. The same application ought also to be made to the sole, covering the whole foot with tow dipped in oil and vinegar beat together, which may be fastened with a roller or pretty long piece of list.

The preceding method is only necessary in obstinate cases, for many times the foundering is cured only by melting pitch and tar together, with a sufficient quantity of hogs-lard, pouring the mixture moderately hot upon the sole, stuffing it up very carefully with hurds, and above them a piece of leather with splents. This is very good, but would be still more efficacious if the sole was pared somewhat thin, and half an ounce of camphor dissolved in the mixture just as it comes off the fire.

S E C T. LXIX.

O F S U R B A T I N G, &c.

A Horfe is faid to be furbated when the fole is worn, bruifed, or fpoiled by any accident ; as by bad fhoeing, efpecially when they lie too flat on the foot, or when a horfe goes too long bare-foot ; as alfo by travelling on hard ways, or among dry hot fand in hot weather, which dries the hoof, whereby the fole becoming hard, preffes upon the foft parts beneath it. If a horfe be furbated by fhoeing, you may know the part that is affected by the thinnefs of the fhoe, where it preffes moft ; therefore it ought to be pared deepeft in that part before another is fet on ; but if the fhoe is not the fault, it may be known he is furbated by his continual hitching and moving ; but by feeling his hoofs, you may obferve them to be both very hot and dry.

The cure is very eafy before it is attended with other accidents, and may be performed only by flopping up the feet with ox or cow-dung and vinegar ; fome break a couple of new-laid eggs and apply them raw to the foles, and then flop them up with ox or cow-dung ; fome ufe only hogs-greafe and tar, moderately hot ; and there are others make ufe of vinegar and foot boiled together ; but nothing will be more efficacious, in cafe
it

it be troublesome, than first softening the sole with the application of unctuous things, and after that pouring in the mixture of tar and grease, made ery warm, upon the sole, as before directed.

S E C T. LXX.

OF RETRAITS AND PRICKING THE FOOT.

NOTHING causes more pain and trouble than the accidents that happen to the feet by bad shoeing, or when sharp splinters, flubs, &c. are stuck in the tender parts within the sole; the reason of which cannot be very difficult to any one who is acquainted with the foot of a horse, which consists of a bone that is very open and spongy, and which, as has been observed in a preceding Section, is full of little holes for the passage of vessels and several sinews, for the insertion of the tendons of muscles which compose most of that substance that lies between it and the hoof; and therefore, when once these sensible parts are wounded by any accident, they commonly terminate in ulcers that are exceeding difficult to be cured, unless they be timely prevented. That which also contributes greatly to this, is the disposition of the hoof, which, though it be a defence to the feet, yet, as all the other parts are inclosed within it as in a box, the artist is thereby often at

a loss to find out the true place where the grievance lies; for in all parts that are covered with flesh, a tumour will arise outwardly, even though its cause be in the bone; but the hardness of the hoof hinders its elevation and swelling, and as nature always makes her efforts in places that are weak, and the least capable of resistance, so it is not very uncommon to find a swelling and rottenness about the frush, or about the coronet, which are sometimes accompanied with a swelling and gourdiness of the legs and pasterns, when the cause is from a caries in the coffin-bone. Now it is very demonstrable from what has been said, that all such effects may be produced by a prick of a nail, a stub, or a fleak, when it sticks in its tender sensible parts, though the first is seldom attended with any bad accident excepting when a horse's blood is disordered; and all that is necessary is only to draw the nail carefully out, and pour a little oil of turpentine, or spirit of wine, into the orifice, but rather a little melted wax; leaving it without a nail for some days, and taking care not to ride the horse into water.

If there be any fleak or piece of nail remaining in the quick, which may be known by examining the nail you have pulled out, or by the continued pain with a constant discharge of matter, you may introduce a piece of dry sponge, made in form of a tent, with a thread drawn

drawn through the end of it; this may be renewed every day, paring the sole very thin over the orifice, that it may stretch and widen; for by that means, the fleak, or piece of nail, may become loose, and have room to fall off with the matter. But if after all you find a continual foreneis, and the matter that comes from the fore thin and bloody, or yellow, viscid, and stinking, you may then reasonably conclude there is an ulcer formed, either in the bone or among the sinews; in that case, it will be proper to take up the sole, and with a razor or fleam make incisions, until you have got a full view of the bottom of the fore, taking care not to wound the large sinews if possible, unless they be mortified and rotten; you need only apply dry lint dipped in spirit of turpentine for the first dressing, which need not be removed for two or three days, in which time the wound will be digested, and the blood turned to matter; and if the coffin-bone be foul, you may scale it by the application of some caustic medicine, as the powder of sublimate mixed with honey, and spread on a pledget, or with oil of vitriol: but the best way is to sear it with a hot iron, and when the scales are fallen off, you need only dress it with pledgets dipped in tincture of myrrh and aloes, until the bone is covered, laying other pledgets over these dipped in warm digestive

digestive of turpentine, honey, and spirit of wine. If any accident happens, as putting forth of proud flesh, &c. it may be kept down with such remedies as have been prescribed in the cure of ulcers. To allay the heat and inflammation which often happens on such occasions, you may charge the hoof with vinegar, bole, and the whites of eggs; and if the anguish reaches higher, you may charge the leg and pastern with a mixture of wine leys and vinegar, keeping the horse all the while to moderate feeding.

If after all this, the horse continues lame, and you find some difficulty to make a cure, you may readily suspect the anguish of this has caused an ulceration in some other part of the foot. The best way is to raise the hoof in several places, and when you have found the grieved part, you are to treat it as an ulcer, &

S E C T. LXXI.

OF THE RUNNING FRUSH.

THIS is a scabby and ulcerous disposition in the frush, which sometimes causes it to fall off by degrees. It may be known both by the eye and smell, resembling that of old rotten cheese; it is not dangerous, but very troublesome, as it causes a continual itching.

In

In order to the cure, you must pare the foot with your buttress, as near as you can, then wash the part with spirit of wine and camphor, lime-water, or alum-water, boiling hot; then apply a charge made of foot, vinegar, and the whites of eggs, and wash the parts sometimes with vitriol-water; at last, when you perceive the itching gone, pour melted tar all over the frog, and keep the foot clean from dirt and filth.

S E C T. LXXII.

OF THE CROWN SCAB.

THIS proceeds from a malignant sharp matter ouzing through the skin above the coronet, or coronet, which frets off the hair, and hardens into a white mealy scab. In some horses it is accompanied with a moisture, and sends forth a stinking matter like the pains and watery fores.

The cure is first to scrape off the scabs gently, and afterwards wash the fores with copperas or vitriol-water. Some make use of spirit of wine, wherein tobacco has been infused, which often succeeds; others cure this scab by applying sope and salt; but if it be of old standing, and obstinate,

obstinate, the following plaster will be of great use :

Take of turpentine one pound, melt it gently over the fire ; when melted and warm, stir into it four ounces of well-levigated stone brimstone. Spread it on soft leather, and place it on the affected place, after shaving off the hair.

The same may be applied on the legs and pasterns, if the affection spreads above the coronet to those parts, giving your horse now and then a little antimony among his oats, until he be cured. But if by reason of this scab, the coronet becomes ulcerated, and some part of the gristle be infected, as sometimes falls out, you are to extirpate all that is useless, and heal up the fore, as has been directed in the cure of ulcers.

S E C T. LXXIII.

O F F I G S.

THESE are spongy excrescences which most commonly grow out on the feet of such horses as are high and hollow, with large fleshy heels; they are caused by all the common accidents that happen to the feet, as furbating, foundering,

foundering, &c. and oftentimes they are the consequence of a long-continued gourdiuefs in the legs and pafterns. Their feat is for the moft part at the top or fide of the frufh, but when they are fuffered to grow old, or are dried up with ftrong ointments, they take another courfe, and fpread to the corner of the heel. They are, as moft other excrefcences of that kind, bred and nourifhed of the fame matter which fufains and nourifhes the finewy and nervous parts, and are only to be cured by extirpation.

Therefore, if the figs be on the fide of the frufh, pare away fo much of the hoof as may give you room to reach the fore with a fleam, or lancet; then cut the fole about the fig, and take them clean out, avoiding as much as poffible, to wound the large blood-veffels. Let your firft dressing be of dry hurds, to flop the bleeding, and if it requires a flyptic remedy, confult the Appendix; two or three days after remove your dressing, and if any part of the excrefcences be left, you may deftroy them by applying *Ægyptiacum* fpread on bolfters, or pledgets of hurds, mixing with every ounce of the faid ointment, half a drachm of arfenic, or corrofive fublimate, enlarging or diminifhing the quantity of the latter, as you find your horfe able to bear it, or the circumftances of the fore may require, and then heal up the fore with

a good digestive, and spirituous applications, &c. If the fig has its insertion into the sinewy or gristly substances in those parts, you must take up the sole, and if any parts of the gristle be corrupted, you may cut it off with a razor, or other sharp instrument. If the bone be ulcerated and carious, you may touch it with a hot iron, and then dress it with pledgets dipped in a tincture of myrrh, aloes, and frankincense, as has been directed in other cases of the like nature; and also with warm turpentine and honey of roses, until the bone is covered, afterwards heal up the sore with some good digestive.

S E C T. LXXIV.

OF HOOFS, BRITTLE OR TOO SOFT.

THESE two extremes are equally prejudicial, as they are often the cause of a great many ill accidents in the feet. The softness of the hoof may proceed from a humid moist constitution, going in wet and moist grounds, or standing constantly on wet litter, or from any infirmity that may bring a too great moisture into the feet, as a gourdiness and swelling in the legs and pasterns, &c. And from hence, the reason of dry hoofs, may be easily understood, as it must
come

Some from a contrary cause, viz. from standing too dry, a dry and hot constitution, or from any infirmity depriving them of their due nourishment.

If the hoofs be too dry, moist, greasy, and unctuous remedies are proper to soften them; as lard, sheep or ox suet, oil olive, or rather a mixture of these together; but they will be very much the better if they be made into a consistence of a stiff ointment, by adding galbanum, wax, olibanum, and such like things; but an equal quantity of tar, tallow, and common honey, incorporated together, will answer the end very effectually, especially while there is no other accident besides a bare hardness of the hoof; but if the horse's hoofs be too moist, they may be bathed every day with warm vinegar, verjuice, copperas-water, and such like; or with these boil powder of galls, and let the horse stand dry, keeping him at the same time to moderate feeding, and his hoofs will soon grow hard.

S E C T. LXXV.

OF NARROW HEELS, &c.

A Horse that is hoof-bound, and has narrow heels, has the quarter of his foot narrower towards the shoe than the coronet, so that the soft substance between the coffin and the hoof is pressed upon, which causes the horse to go lame; sometimes the hoof presses on both quarters, but very often on the inside only, being much weaker and more easily bent than the other; in some cases the whole hoof is shrunk on the upper part, that it makes a hollow circle under the coronet, pressing so hard that it intercepts the nourishment that should pass to the foot.

This imperfection proceeds sometimes from a dryness of the hoof, but very often from freight shoeing, and by weakening the quarters of the hoof in paring them too deep, and sometimes it is caused by foundering, and other accidents to which a horse's feet are exposed.

The cure is, first, to shoe him with lunets, or half-moon shoes, or with those pantofle shoes described by Solleyfell, or any other that will sufficiently press out the quarters; after which anoint his hoofs with the softening remedies prescribed in the last Section, and let him stand some days in his own dung; but if the binding and pressure of the
hoof

hoof cannot be relieved thereby, recourse must be had to an operation. If the hoof be bound all round the coronet, first give the fire, making several rases from the gristle of the coronet to the shoe, piercing the hoof about the thickness of a crown-piece, repeating the same operation on the other side of the heel (for the fire softens the hoof and makes it stretch) after which keep the foot constantly mollified and softened, as already directed. In the most obstinate cases it will be necessary to take out the sole which we mentioned before, and we think it to be the best and speediest remedy, and the most reasonable, which is, after the sole is removed to cleave the frush with a fleam, and fix a splent of iron to the part, placing it so that it may open the heels, and keep them an inch or two wider than they were before. This is plain to sense, because the intermediate substance that fills up the cleft, will keep them constantly wide enough for the time to come, if care be taken in their shoeing, &c.

S E C T.

S E C T. LXXVI.

OF A FALSE QUARTER.

A False quarter is a rest or chink, in the quarter of the hoof, from top to bottom; it happens generally on the inside, that being the weakest and the thinnest, and proceeds from the dryness of the hoof, especially when a horse is ridden in dry, sandy, or stony ground, in hot weather, or in frosty weather when the ways are flinty and hard; it is likewise caused by bad shoeing, and all the other accidents whereby a horse becomes hoof-bound; for the narrowness of the heels, and brittleness of the quarter, continually expose a horse to such misfortunes.

This accident is both dangerous and painful; for as often as a horse sets his foot on the ground, the chink widens, and when he lifts it up, the sharp edges of the divided hoof wound the tender flesh that covers the coffin-bone; which is, for the most part, followed with blood, and it must of course be apt to render a horse lame, as it is very difficult to form a re-union.

The usual method to remedy this imperfection is, by cutting off that part of the shoe which lies upon the chink, that it may be wholly uncovered, then with a drawing-knife to open the rest to the
quick

quick, filling it up in all parts with a rowel of hurds dipped in turpentine, wax, and sheep-suet, melted together, renewing it every day till the seam is filled up; after it is closed in the top or upper part, it is usual to draw the place betwixt the hoof and coronet, which by softening the hoof and bringing a moisture into it, causes it to grow the faster, and shoot downwards.

There are some who fear the coronet above the crack, without piercing the skin, just where the hoof begins, and with another iron fear the chink about the middle of the hoof, which succeeds very well, if care be taken to keep them moist with applications of tar, honey, and grease; some pour aquafortis into the rest when the pain is violent, to deaden the part, making a border of wax on each side, to hinder it from spoiling the rest of the hoof; and there are others who prepare a flat piece of wood, about an inch in breadth, but at the same time so slender, that it will bend like a hoop, and of a sufficient length to go twice round the hoof, and having first drawn the whole length of the cleft, they apply turpentine, pitch, and suet, melted together, to the fore, and fasten the hoop with pieces of list, or filletting. This is a contrivance to answer instead of bandage, to keep the chink united, and to prevent it from jarring when the foot is moved, which is indeed very reasonable, for the
least

least motion will be apt to discompose the tender substance that grows up in the cleft, and cause impostumation, which will again open the hoof: but we are of opinion, instead of this troublesome way, the following method will be found more easy and successful:

First draw the whole length of the cleft gently with your drawing-knife, then anoint the hoof with tar, honey, and suet, melted together, as directed; for nothing can be more proper for the hoof; and lay a thin pledget, dipped in the same, along the cleft; after this take of rope-yarn, such as the sailors use, which is no other than hemp moistened in melted pitch and tar, and spun loose; apply the yarn all down the hoof, beginning at the coronet and descend, one lay after another, as close as possible; laying a pledget of tow behind, to keep it from fretting the heel. This should be opened once in three or four days, that the cleft may be dressed; and to prevent any inconveniency that can happen by the opening, a thin staple may be also contrived, with points like horse-shoe nails cast off obliquely to take a slender hold, the plate of it crossing the cleft where part of the shoe is cut off, and the nails coming out on each side of the cleft on the upper part, to be rivetted as other nails. By this method a cleft in any part of the hoof may easily be cured, if the horse be not very old or diseased.

We

We shall now end this discourse by introducing the cause of casting the hoof, together with the cure ; then proceed to a very copious Appendix of different prescriptions, contrived by the most eminent authors in France, Germany, Italy, and by ourselves.

The loss of the hoof is occasioned by pricks, stubs, foundering, furbating, or whatever other accident may bring an impostumation into the foot, whereby the whole coffin of the hoof becomes loosened and falls off from the bone ; and sometimes the coffin-bone, which is spongy and easily broke, falls off in large pieces along with the hoof ; but this is a very desperate case, since a perfect foot can never be formed after so great a loss ; but a new hoof may be procured with care and proper applications, if the coffin-bone, &c. be not injured.

The usual method to procure a new hoof, is to apply to the coffin tar, turpentine, wax, oil, pitch, and such things melted together ; and then make a boot of leather, with a strong sole, to be laced fast about the pastern, bolstering and stopping the foot with soft flax, that the tread may be easy, renewing the dressing every day until the new hoof grow. The boot is certainly very proper, but the ointment will not always be sufficient to make a sound and smooth hoof ; and therefore, if the part grows fungous, which is very common, and, in a great measure, the cause of the ill shape and

unevenness of the new hoof, sharper applications ought to be made use of ; for which purpose we recommend the following :

Take of rosin, half a pound ; oil olive, one pound ; dissolve the rosin in the oil over a gentle fire ; take it off, and when it begins to cool add myrrh, aloes, mastich, and olibanum, in fine powder, of each two ounces, and make it into an ointment.

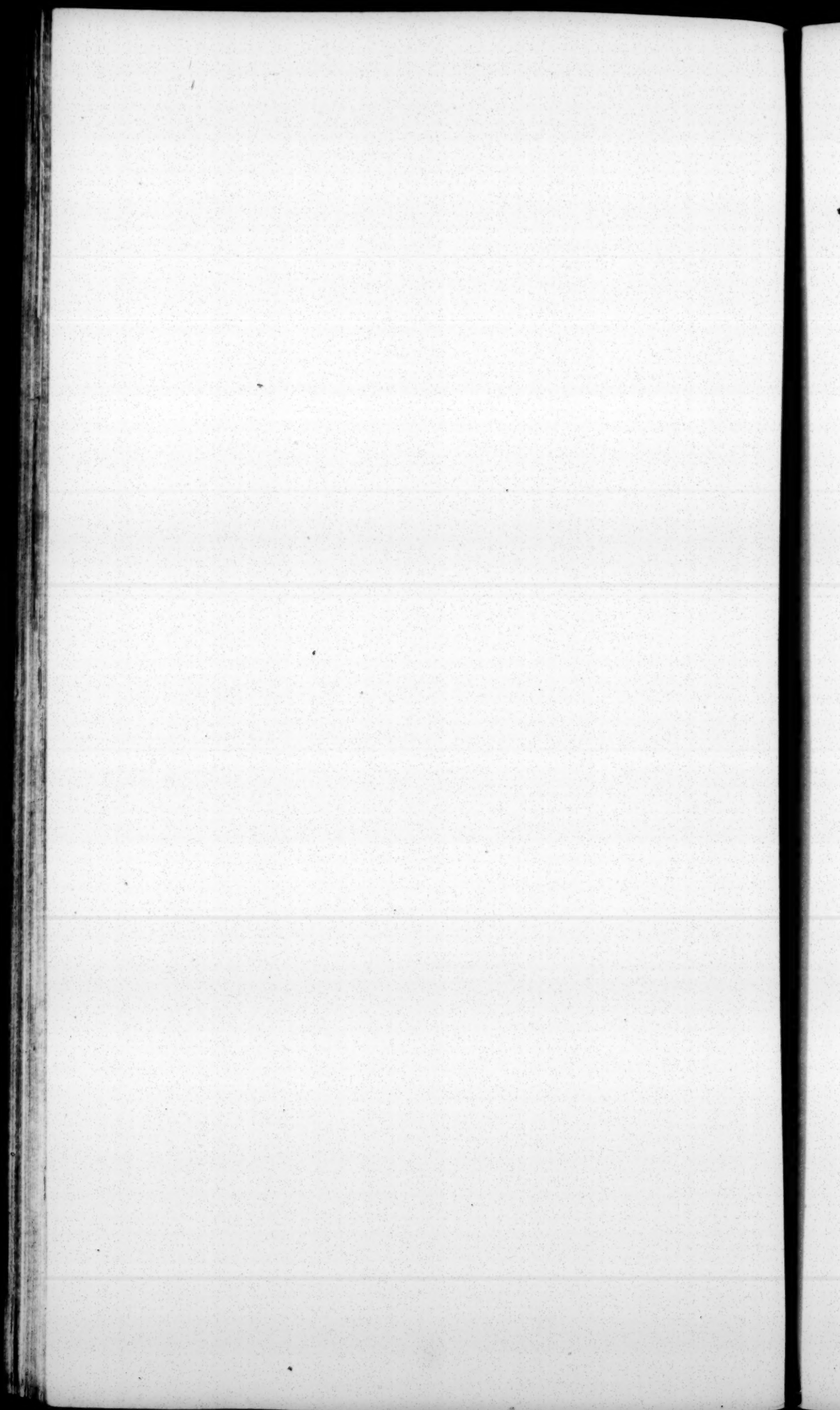
Take of this ointment and *Ægyptiacum* equal parts, dissolve them over the fire, and with pledgets soaked therein dress the whole hoof ; and having made an easy bandage over it, return it into the boot. If the ointment be required more powerful, you may add the powder of white vitriol or burnt alum, viz. two ounces of either to a pound of the ointment, with half an ounce of orpiment, whereby the hoof may be preserved smooth, being dressed once a day in the manner directed.

It is the way with some farriers, when they observe the new hoof growing before the old one falls off, to pull away the old one ; but they ought never to be too hasty, unless some accident happens to require its removal ; for the hoof serves as a cover and defence to the new one, and makes it grow the more smooth and even, as in a mould ; and nature, for the most part, will cast it off of her own accord as soon as it becomes useless.

We

We knew a horse in this condition that was turned into a field, where there was a shade for him to lie under; he lay most part of the time his hoof was growing, and had hay given him five or six times a day; and by favouring his lame foot the old hoof came off, and the new one grew with very little assistance; and though he was not young at that time, he afterwards travelled and did very good service.





A P P E N D I X.

THE following sheets contain an account of all the practitioners' prescriptions of Germany, France, Holland, Italy, &c. &c. &c. translated into English.

For a horse that has a disordered sight.

Take spring and rain water, of each an equal quantity, filtre the former through white-brown paper, rasp in a little Castile sope and double-refined sugar; afterwards filtre it again through another paper; use this with a soft feather two or three times a day till the eyes become clear.

Pills to purge the brain of a horse that has sore eyes.

Take agaric, common aloes, fenna-leaves, turbith-roots, gentian, and ginger, of each three drachms, all in powder, and with unsalted butter, or syrup of buckthorn, make it into a sufficient number of balls, to be rolled in liquorice powder, for one dose; give after it a few glasses of wine, to make him swallow it the better; he should fast six hours before and after taking this dose.

A Powe-

A powder to dissipate a web.

Take garden-thyme or wild-thyme, dry one or both of these in the shade, and make a fine powder; which use with a feather to the horse's eye three or four times a day.

Remember never to blow any powder into a horse's eye.

Another remedy for sore eyes.

Take celandine-juice, two ounces; white-vitriol and Florentine orris-root, powdered, each half an ounce; put the juice and powder into a pint of plantain or spring-water; beat it all well together till the water is in a froth; then let it settle all night, and filtre it through white-brown paper; to be used with a feather.

Another powder for films or specks.

Take crystal or glass, levigated very fine, to which add an equal quantity of sugar-candy, sift it well for use.

Another, very good.

Take ground-ivy, four handfuls; common salt, sugar-candy, white-copperas calcined, each an ounce; six new-laid eggs, boiled hard, and the yolks to be taken away; after which beat shells and all well together in a marble mortar, with a
pint

pint of white-wine ; let them infuse twelve hours, and filtre it through paper for use.

An eye-powder.

Take common slate, calcined ; snail-shells, kali, or sea-wort, each two ounces ; powder all these and sift them through a lawn sieve ; use this as before described, and continue it till the cure is finished.

Sulphurated oil, for the mange.

Tie half a pound of flowers of sulphur close in a linen cloth, and put it into three quarts of nut-oil, or for want of that, oil of olives ; let it just boil up in an earthen pot, setting it on charcoal, that no flame may come at the oil ; having taken it from the fire, rub all the mangy parts with your bag of sulphur, as hot as your horse can bear it ; do this three times, or at least twice a day, for a week or better, and to forward the cure, mix liquorice-powder and sulphur, of each a pound ; give the horse two ounces at a time, morning and evening, with scalded bran.

Another remedy for the mange.

Having kept your horse on bran, bled him, and given him two or three purges, take oil of bays, four ounces ; quicksilver, two ounces ; rub them together in a stone mortar till the quicksilver disappears. Anoint all the scabby parts ; if
it

it be warm weather, dry in the ointment with the fun; but in winter, rub it on in the stable, and never be too free with a hot iron, like some ignorant farriers, because it destroys the roots of the hair; five or six rubbings once a day will effect a cure.

Another remedy for the mange.

Take sweet black-leaf tobacco, roch alum, white and green copperas, an equal quantity of each; and to every half pound of each, a quarter of an ounce of gall-nuts, and as much cannon-powder; infuse the whole in about two quarts of aqua-vitæ, for the space of twenty-four hours, without suffering it to boil all the time; then with the soaked tobacco-leaves, or a piece of sponge, apply it every day to the itchy parts; but the first two or three days rub the scabs well, before application, with a wisp of straw, that the liquor may penetrate the better.

Another.

Take oil of hemp-seed, one pound; Spanish flies and euphorbium, each two ounces; let them boil up together, and when cold, rub the scabs with the liquor three or four days following, having fretted them first with cow or horse urine, in every two quarts of which, two drachms of white copperas have been dissolved.

Another.

Another.

Take the herb called lions-foot, dried and powdered ; and put two good handfuls of it into two quarts of oil of hemp-seed ; let it infuse over hot ashes ten or twelve hours and then wash the scabs with it.

Another.

Take two quarts of vinegar, white-copperas, roch-alum, each four ounces ; the herb called ravens-foot, one handful (which may be omitted) : boil all together to the consumption of one half.

An ointment.

Take hogs-lard, two pounds ; quicksilver, four ounces ; rub them well together, and add to them euphorbium, two ounces ; verdegris, one ounce ; Spanish flies, half an ounce ; mix and make an ointment.

A Purge.

Take hepatic aloes powdered, and manna, each half an ounce ; ginger in powder, four ounces ; rhubarb, half an ounce ; fresh butter half a pound ; make it into middle-sized balls, rolled in liquorice powder. Let the horse swallow after them three or four new-laid eggs, in half a bottle of white-wine ; he should fast eight or ten hours after tak-

ing this ; and if it does not begin to work in twenty-four hours, walk him about till he does.

Of the old reds.

This is a sort of mange, that seldom comes but on stone-horses, who go to cart and plough, are full of humours, thick chested, have large folds across the mane, especially near the withers, and in the upper part of the tail. Some take it for the true mange, because it is equally infectious ; from the wrinkles or folds in the chest there issues, between whiles, a red humour, and sometimes a white matter ; they both stink and make the hair fall. In order to cure, you must shave the part as close as possible, and rub it well with a wisp of straw, as if you would fetch out the blood, nor is there any damage if it bleeds ; then take black-sope and rub it all over like an ointment ; in the summer time do it in the sun, to make it penetrate the better ; but observe to tie your horse up short. In the winter rub him in the stable, and dry it with a warm iron, which you may gradually bring equal to the heat of the sun (be careful not to scorch the root of the hair) and this application repeated once a day, for a week or ten days, will effect a cure, after the usual preparations.

Tettlers, or ring-worms.

Some confound this disease with the mange, or the old reds, from both which, however, it differs ;

fers ; there is the live tetter, and the white tetter, and they both appear on the head, on the chest, and sometimes on the body, as well as on the shoulders; their cause is a fine subtile blood, which insinuates between the flesh and the skin, and makes the hair fall the breadth of a crown piece, or sometimes of the palm of one's hand. Now and then the head, and even a part of the chest, is left naked. A horse in this disorder, should be a long time refreshed with bran and honey, or with good barley, just cracked in a mill, but not reduced to a meal, which is better than bran. Put either in the bran or barley, morning and evening, an ounce of liver of antimony, for a dose, and continue this for a month or six weeks ; all this time rub the bald places every day with black-sope, without exposing him to the sun, or using the hot iron, and three or four times during the whole space, open his jugular vein; if this remedy is not effectual, use one of those prescribed for the mange.

To make the hair grow, when fallen off by tetter, wounds, or scabs.

Take ointment of poplar buds and honey, of each an equal quantity; mix them and rub the parts once a day for a fortnight; if it be summer, and the flies are plenty, put a little powder of

3 R 2

bitter

bitter apple, or for want of that, of common aloes, which will keep the flies from touching it.

For the same purpose.

Take the roots of long flat flags that grow in the rivers, and boil them to a pap; then mix with it honey and hogs-lard, of each an equal quantity, and make an ointment; which rub in several times a day. This will make the hair come again in any place, where it has been used to grow.

Farther account of the foundering of horses.

This is a common and well-known distemper, which happens most frequently in the army, and proceeds from many different causes. A horse may founder by drinking cold water, or by standing still when he is hot, whereas he ought to be cooled gradually, by trotting and walking till he comes into temper. The same may happen by putting a horse hot into the stable, while others drink; to avoid which, give him a quart or two of water, in which the hands have been dipped; or water a little warm, or with a little bran; or give him a lock or two of wet hay. It is equally dangerous to stop a horse when warm upon the road, or in any open place, exposed to the wind, if he continues but half an hour.

A horse may founder also by getting to the oat-crib, and eating too great a quantity, or by eating too much of beans, wheat, rye, or barley; to prevent

prevent this, especially in the army, where the want of oats is often supplied by other grain, you should soak your morning corn all the night, and your evening corn all the day.

Green forage that is apt to heat may also occasion this malady; an accident that happens often in the army, especially when rye is in the blossom. But founderings of this sort are easily cured, provided you have recourse to means as soon as they are perceived.

The foundering that swells is the most dangerous, because it comes by degrees, and may be long before it is discovered. When a horse that has been long in the stable limps upon one of his hind-legs, and can neither stand upon it nor lie down, he may be concluded in this distemper, which is occasioned by the contraction of the nerves, and difficult circulation of the blood. Fat heavy horses are hard to cure, and scarce fix in a hundred, whatever care is taken to look after them, but feel the effects of this distemper as long as they live.

To prevent this sort of foundering, it is not sufficient to remedy the immediate cause of his lameness; you must endeavour to remove whatever may affect the other legs and feet, fortifying them from time to time by rubbing the nerves with oil of turpentine and brandy, beat together in equal quantities, or by bathing all the leg, from top to
bottom,

Bottom, with leys of wine, using afterwards cow-dung fried with hogs-lard and vinegar. If a horse continues long lame, and his other legs swell, have him well shod, and his feet pared, continuing to put the cow-dung into his hind-feet, and to rub his legs and nerves from time to time with oil of turpentine and brandy, or leys of wine, which are the only remedies in this disorder.

A foundered horse is easily known, by drawing back from the rack or manger, bearing upon the reins of his halter, walking with difficulty, and bending his fore-knees with pain. When you make him go backwards he drags his feet, and scarce can lift them from the ground; his hind-feet move with violence, and fall down as soon as they are up.

We have before said that this disease proceeds only from a chilliness in the blood, which hinders the circulation through the liver and lights; to which we may add, the nerves stiffen, and have scarce any motion; that the horse eats little, and presently falls back from his manger; and when the distemper is of long standing, he mostly lies down. To know it certainly, observe whether the hair frizzles and curls, as it were, on the inside of his knees, the footlock, the hams, and near the flat of the thigh. A man must have great skill to cure a horse perfectly in this condition.

If

If it be a draught horse, which may still serve for the plough, take the two shoes off his fore-feet, and pare his hoofs almost to the quick, taking care, however, not to draw blood, then shoe him as before ; trot till he begins to sweat, and if you are near any water, open his neck-vein, and ride him up to his knees, catching the blood, to the quantity of two quarts, in a pot ; after he has bled enough, put a handful of salt into the pot, and stir it well with your hands, then give the horse to drink, with a horn, as soon as possible. Take afterwards a quart or three pints of oil of turpentine, and as much brandy, beat them together, and rub with this mixture down the fore-legs, upon the nerves, and across the loins, all with the utmost expedition ; the horse being tied short with four reins, two to the manger and two to the rack, to prevent his hurting himself ; the more he struggles the more hope is there of a cure, and his uneasiness will not last above half an hour ; in case he be unruly before you have done rubbing his legs and reins, pinch his nose till you have finished, and then leave him at liberty to do as he pleases. Let somebody stand behind him with a whip, to prevent his doing himself any mischief. When he has done struggling, rub round the crown of his hoofs with good oil of bays, and fill with it the two fore feet that are pared, keeping it with tow and splinters.

The

The next day, at the same hour, be sure to give him a good purging clyster; if you see no amendment repeat the same remedies, without bleeding, giving him, in the room of blood and salt, two ounces of good Venice treacle, an ounce of monks rhubarb, and half an ounce of sal-prunellæ, all mixed in a large bottle of wine; likewise rub his legs and across his reins, adding the oil of bays as before directed.

Clysters should be repeated morning and evening, and every other day give the draught as above. If he be not well in nine or ten days, conclude him incurable.

Another remedy for foundering.

When a horse is foundered, ride him to a river or pond, or any other water, but a river is best, and still the better if it has a mill on it, and lead him into the mill-pool, above his thighs, and let him stand there an hour, with his head against the stream, then walk him till he sweats, and rub his legs and reins well with a wisp of straw; then you may bleed him freely from his neck-vein, and rub the nerves of his legs well with blood, mixed with brandy. Afterwards put him in the stable, and rub round his hoofs with oil of bays, which bind on with tow and splinters; for want of oil of bays, use hogs-dung, fried in hogs-grease, vinegar, and a handful of salt, this will keep the foundering out of the hoofs. You must keep him to
bran

bran and water for the fifteen following days, and the next day, after bleeding, administer the following draught :

Take four large heads of garlic, picked and pounded, with a handful of salt ; dilute this with a bottle of white wine ; repeat the draught three or four days running. If the horse be bound, as is usually in these distempers, and his dung looks as if it had been burnt, be sure not to neglect your clysters.

Another way of treating a foundered horse.

If you perceive your horse foundered in the morning, walk him in the day ; or if in the evening, walk him the same night ; because in this distemper no time should be lost, unless you would run the hazard of making a perfect cure ; if it be in the spring when you can have the leaves, or the tops of the wild vine, make him eat as many of them as you can, and if you can keep him upon this and scalded bran for some days, it will do great service. You must give him bran-water during the whole course, and often put restraining into his fore feet.

These restraining may be composed of white-wine vinegar, the whites of eggs, dragons-blood and salt, powdering all that require it ; when muscles seem too stiff, you may supple them with the following :

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Take raw eggs and beat them as if you would make a biscuit; then take oil of turpentine, cow-dung, and wine-vinegar, in proportion, mix all together, and rub the legs with this very well along the muscles every six hours.

It is not surprizing that many foundered horses are the worse for it all their lives, some more some less, according to the strength of the distemper, because most people content themselves with internal remedies, without regarding the feet and legs.

Of melted greafe.

This distemper often accompanies foundering, and few horses that have them both are ever cured. It is said melted greafe is, when there is, or at least seems to be, pieces of fat intermixed with the dung of a horse; some ignorantly believe that this fat comes from the kidneys; but how should the fat of the kidneys get into the bowels? We will not dispute but that all the internal fat may be over-heated; but what is voided with the dung comes off the guts, and is only a greasy filth, that sticks on their inside, and is loosened by the heat. This is proved by what may be seen in cleansing the bowels of any animal at all. If the discharge of this matter cannot be stopped, it is all over with your horse; for the nutriment he takes, cannot slide through the bowels, which are no longer capable to receive it; so that the horse
looses

looses his appetite, and frequently dies. You must give him nothing that may heat by the way, either of diet, draught, or clyster; and instead of wine, which is common in horse-physic, use only whey, or if that cannot be got, water in which lettuce, beet, purslain, succory, or other herbs of the same quality have been boiled; or for want of the herbs, water softened with bran or meal. Let the draughts be much the same as for foundering, adding only a quarter or half a pound of honey; refreshing clysters should be often repeated. Though this distemper is seldom curable when joined with foundering, yet when alone there is room for hope.

Another way to know when a horse's grease is melted.

A horse whose grease is melted, looses his appetite at once, appears very sorrowful, and often is seized with a fever. To be certain look at his dung, and if you find it slimy, or wrapped in a sort of membrane, or melted fat, it is a proof that the fat is over-heated within the bowels, and comes away with the dung. A horse in this condition must be soon relieved, or not at all. Such a horse, from the very first, desires always to lie and be at rest, which is what destroys him. You must walk him gently, therefore, from time to time, either in the stable in winter, or in the

fun in summer; in order to prepare him for taking the remedies already mentioned.

Avoid bleeding, in this disease, because that would chill all the melted grease within him; but take three pints of beef or pork brine (the former is best) and a pint of the juice of rue, incorporate the whole together, and boil it a quarter of an hour; give it luke-warm, and if the remedy be taken in time you may hope for a cure from it.

When this cannot be got, take two or three quarts of the blood of a sheep that is just killed (if possible let it be a ram) with a handful of salt, which you must first dissolve in warm water, and give the whole as soon as possible.

Another remedy for a horse whose grease is supposed to be melted.

Take Venice treacle and manna, of each two ounces; fenna-leaves and sal prunellæ, each four drachms; gentian-root, one ounce; cut the root into thin slips, and infuse the whole in a bottle of wine for twenty-four hours; strain it through a coarse cloth, and give it the horse; this is good for many other diseases.

The stag-evil.



This distemper is so called, because horses afflicted with it are like stags that have been long hunted, and while they are heated have passed
some

some river, which brings a stiffness in their neck, body, and legs; such a horse opens his mouth with pain, his jaws being so locked together that he cannot receive any nourishment, and you may sooner break them than force them asunder. The sole cause, therefore, of this disease, is being over-worked, and then suffered to stand still without a gradual cooling. When it comes alone, however, without melted grease or foundering, there is hope of a cure, by treating it in the following manner;

First, take oils of spike and turpentine, equal quantities adding a double quantity of oil of bays; put these in an earthen pot, and dissolve them over a gentle fire, stir the composition till it is cold, and then rub with it both sides of the jaws, especially at the joints a little roughly, that it may the better penetrate; then put a wooden wedge into the horse's mouth, and strike gently upon it, for fear of breaking the jaws, and if he opens them ever so little, let half an ounce of laudanum be injected down his throat, and if that cannot be done, probably he will die with hunger, rather than with thirst, because he cannot chew; but in order to oblige him to take some nourishment, set before him water thickened with bran or meal, some of which he may swallow, by sucking it down his throat. If his teeth continue shut, and the spasms of the
muscles

muscles of his face cannot be relaxed, he certainly will die of hunger.

In this distemper give clysters, two or three times a day ; and if you can bring him to open his mouth a sufficient width, good nourishment should be preferred to physic ; panada, given with a horn, is very proper in this case ; you may make it with half a dozen stale biscuits, or an equal quantity of dry bread powered, and boiled up in the manner of children's pap ; put to it half an ounce of cinnamon, half an ounce of nutmeg, two ounces of liquorice-powder, or powdered sugar, and mix the whole together ; this will strengthen the horse very much. When he is very low you may put five or six yolks of eggs into the panada, every night and morning till he comes to eat ; rubbing him every day across the reins and down the legs with brandy and oil of turpentine, in equal quantities, according to the directions for a foundered horse.

A medicine for the stag-evil.

Take Venice treacle and cordial powder, of each one ounce ; manna and sugar, of each two ounces ; mix them together in a bottle of wine, and let the horse take two of these draughts every day, giving a clyster between them ; whatever you give him by the mouth, take care not to raise his head too much, but rather sink it from time to
time

time, for raising the head will stupify, and may possibly make him fall, in which case it would be difficult to get him up again. Nor must you force him to rise, but rather surround him with dung, in order to keep him warm. Use the same means to open his mouth when he is down as when he is standing, with as little violence as possible; some horses have continued a fortnight in this condition and yet have done well.

Of the gripes or colic.

This disease resembles that of the same name in human bodies, and has much the same cause; but we shall introduce it, with saying a little concerning the vives.

If you are in a place where remedies may be had, walk your horse till he is a very little warmed; and then beat his glands gently with the handle of a hammer, or any other piece of wood, without opening them; after that upon the jugular vein; then take four ounces of conserve of elder, and dissolve it in a bottle of wine, with two powdered nutmegs and a quarter of a pound of sugar. When your horse has drank this, wrap him up close, and leave him to sweat. Two ounces of the seeds of garden cresses (in case the elder conserve cannot be got) may be infused a quarter of an hour in a bottle of wine, and given for the same purpose, as hot as possible. For want of both,
take

take four ounces of Venice treacle, with a small handful of salt, and dissolve them in wine, to be given as the others.

When the vives are accompanied with the gripes, the same remedy will operate, if you add to the draught an ounce of *sal prunellæ*; if it be still ineffectual, add four ounces of oil of olives, and half an ounce of oil of petre. If the horse continues in pain it is a proof the passage of his bladder is stopped, or that his urine is detained in the reins; in the former case, take a piece of whale-bone, as long as your arm, and reduce it to the size of a wheat straw, make it very round and smooth, with a little knob at the end, to which fasten a bit of fine muslin; dip this in sweet oil, and having dextrously drawn the horse's yard out of the sheath, thrust it up the passage to the bladder; if this does not bring out any water, it proves the disorder to be in the reins; but if a little comes, it shews the bladder to be full. Let a man then rub his hand and arm up to the elbow with oil or butter, and thrust it up the horse's fundament, in order to extract all the dung out of the great gut, taking care not to scratch him with his nails. The gut being empty he may carry his hand to the bladder, which if he finds it swelled, he must gently press, and so oblige the horse to stale; but if nothing is found in the bladder, it proves the water to be still in the kidneys.

If the draught, with oil of petre, gives the horse no relief, but he continues in great pain, lying down and rising every instant, take a large quantity of blood from his neck-vein, and then give him the following remedies, viz.

Take a bottle of antimonial-wine, in which put a quarter of nut-oil, and an ounce of oil of amber; for want of the oil of amber, take four or five hundred wood-lice, dried and powdered, and use them in its room; give this for a draught. It would be also proper to administer a clyster twice or three times in one day, in which there should be an ounce of rectified oil of amber, and as much oil of petre. If you cannot get these, use two ounces of sal prunellæ, or a large handful of common salt; and if this remedy does not cure your horse, depend upon it no other will.

Another remedy for the gripes.

Take a handful of rue-seed, pound it in a mortar, and mix it in a pint of warm white-wine, which give for a draught; immediately after walk your horse an hour or an hour and a half, without suffering him to lie down, which in this disease he will continually endeavour to do, for which reason you must give him no repose till his pain ceases.

A remedy to make a horse stale.

When a horse cannot stale take black-rofin, two ounces, in powder ; mix it with two yelks of eggs, and add by degrees a pint of ale, and give it the horse warm ; you may walk him an hour or two after taking it.

Another.

Take parsley-root, or the heart of a leek, of the greatest length you can get, and endeavour to thrust it into the orifice of the yard ; this alone is sufficient in a simple retention.

Another remedy.

Take ten or twelve radishes, in proportion to their size, with their greens on, boil them in three pints of white-wine, to half the quantity ; strain the liquor through a fine cloth, and give it warm to the horse ; when he has taken it, thrust a slender piece of mallows-root up his yard, as far as you can, which may be near half a foot. A piece of yellow wax-candle, well greased, may serve when the mallows cannot be had.

To provoke urine.

Take two or three large heads of garlic, cut them and bruise them in a mortar, with oil of olives,
till

till they come to the consistency of an ointment; with which rub the testicles, and the naked yard of the horse, repeating it every quarter of an hour, to the number of five or six times; if the retention be not extraordinary, this will cure it.

For the gripes.

Take green-anise, two ounces; oil of olives, a pint; white-wine, a bottle; bruise the anise, mix with it the oil and wine, and give the whole to drink warm, walk him two or three hours after, and let him not drink for twelve hours; then give him warm water, with bran or meal.

A clyster for the gripes of every kind.

You must give no rest to a horse that is attacked with the gripes, but keep him moving till he takes the following remedy:

Boil good wheat-bran, thoroughly, in a sufficient quantity of water, which strain afterwards through a linen cloth, and put to it a quartern of oil of olives, a quartern of honey, sal prunellæ and Barbadoes oil, of each one ounce. Administer this by way of clyster, as hot as the horse can bear it without hurt, and if the pain continues four hours after, make him take the following:

3 T 2

A drink.

A drink.

Take Venice treacle, one ounce and a half; sal prunellæ and oil of petre, each one ounce; oil of turpentine, half an ounce; sweet oil, two ounces. Mix them all well in a pint of warm wine; if this does not effect a cure, repeat your clysters two or three times a day, till you perceive your horse better; and towards the end of the fit use clysters composed only of bran-water, honey, oil, and common salt.

An Italian medicine for the relief of broken-winded horses.

Take three pounds, two pounds and a half, or two pounds of fat bacon, in proportion to the size of the horse; mince it small, and soak it twenty-four hours in a small quantity of warm water, changing the water every two or three hours; then take a handful of smallage, cut it fine, and beat it up with the bacon. You must have a pint of sweet oil to dip this mixture in, and then give it to the horse in a morning after he has fasted all night; get upon his back as soon as he has taken it, and give him an airing for three or four hours. Repeat this prescription six times in twelve days, keeping him all the time from hay, or wetting what hay you give him. His oats should be bedewed

dewed with the urine of a sound hearty man, and afterwards mixed with the following powder :

A powder to sprinkle among the oats of a broken-winded horse.

Take three or four pounds of small shot, cast in water, and beat it in a large mortar till it is reduced to powder ; then take the same weight of flowers of sulphur, and mix with it in an earthen pot ; heat a spit red-hot and thrust it into the pot, and when the composition has taken fire wait till it goes out of itself. The powder that remains at bottom you must pound over again, and sprinkle about a thimble-full of it, night and morning, over his oats ; this will relieve a horse very much in ten or twelve days, but radically to cure him is impossible.

Another remedy.

Take sweet oil and brandy, a pint of each ; give it for a draught three mornings running, the horse fasting six hours before, and as many after taking it. A man must be a good judge, who can tell on the fourth day, whether your horse is broken-winded or not ; at least, if he be not very bad indeed.

Another remedy for a broken-wind.

Take three large handfuls of the herb called ox's-tongue, and boil it in six or seven quarts of wine,

wine, till it is half wasted; give the horse about a quart every other day, keep him warm, litter him well, and let him fast three hours before, and as long after, taking this draught. Give him a good handful of rye, and let his hay be all soaked in water; wheat-straw is much the best for him, if you can get a sufficient quantity; sprinkle all his oats with fresh human urine. If you repeat this course once a month, it will make a broken-winded horse do a great deal of business.

Another.

Take figs, either fresh gathered or dry, and pound as many of them as will yield you half a pint of juice, by expression, which mix with good wheat-bran; give the whole quantity evening and morning, and continue it for some time, observing to wet the bran with warm water. The following draught should also be given for some days:

Take three ounces of fine starch, and half a pound of boars-lard, dissolve them in a full quart of water, stirring it well, and give this to drink every morning, till the horse mends; mix a little honey in his common water, and if he will not drink, keep him thirsty till he does drink, then use the following fomentation:

Put two or three handfuls of rosemary branches, flowers and all if they are in season, in a new earthen

earthen pot; fill the pot with brandy, cover it close and set it over a gentle fire till it be ready to boil; then put your horse's head into a bag, with holes at both ends, and fumigate it with the steam of the pot from underneath, which will make the horse sweat, and transpire the ill humours that may affect his lungs; fumigate him in this manner, morning and evening, for eight or ten days, and if he is not perfectly broken-winded, you may hope for a cure; if he is, this will do him great service.

Another.

Shut your horse in the stable a fortnight; then bleed him; feed him only with chaff and scalded bran, and let his drink be fair water warmed. If he has a great cough, take an ounce and a half or two ounces of oil of bays, and tie it up in a bag for him to hold in his mouth. Let him drink freely whenever he is dry. You must use this as long as the cough continues; and when that leaves him, give your horse the following composition:

Take sweet oil, half a pint; common aloes, two drachms; saffron, half an ounce; put the whole well mixed into a bottle of wine, and give it for a draught. Let him fast four hours before and as many after taking it. Then take a bottle of white-wine, and put in it six large onions, boiling them to a pap over a gentle fire, without flame, and till the

the water in them is all evaporated. Give this with a drenching-horn three days after the former; then let him rest three days, and let his next draught afterwards consist in these ingredients, viz. nutmegs, cinnamon, ginger, and long pepper, each one ounce; put them all together in a bottle of white-wine, with four ounces of oil of olives; heat the whole before you give it the horse, who should be walked two hours before, and two hours after taking it; in twelve days time repeat the first of these draughts, and if you are desirous to preserve your horse, let him drink nothing but blanch'd water, and never eat any hay unless oblig'd to it by necessity; when that is the case, see it be good and clean, and moisten it a little with water.

To preserve a horse's wind when going to perform a race.

Take dry teazles, such as the cloth-workers use, reduce them to powder, and sift the powder well. Give the horse half an ounce of it at a time, night and morning, among his oats. This remedy, simple as it seems, is excellent for the relief of a broken-winded horse; and to preserve the wind of a horse that is not affected, give him a dose of it whenever he is to take a long heat.

Another

Another alleviating remedy for a broken-winded horse.

Take lead, and file it to as fine a powder as possible, of which give an ounce at a time in the horse's oats, after they have been soaked in fresh human urine; or for want of that, fair water. This remedy continued, will do much service. Observe, in general, never to give any thing dry in this distemper.

A medicine to keep a broken-wind from growing worse.

Take half a large handful of green broom in blossom, chop it small, and mix it with your horse's oats, after you have wetted them with human urine. Deprive him of hay, and give him straw in the room of it, wetting it night and morning, to make it the fresher; for many horses will not eat it when kept wet from one day to another. While you give him the broom, which should be for eight days running, lead him once or twice a day to the water, and make him swim, without suffering him to drink, especially on the day when you would have him appear sound-winded.

Another to preserve the breath of a short-winded horse.

Take pimpernel and cresses, of each a handful and an half, pound them together in a mortar, and having put them in a bottle of wine to infuse a few days, give the whole for a draught. This is a very good remedy.

Another for the same purpose.

Take broom-flowers, and white-thorn leaves, the freshest and tenderest you can get, with the yellowest leaves of fallow and colts-foot, of each an equal quantity. Chop the whole very small, and make the horse eat as much of it as possible in his bran. Keep your horse on this diet, and a little straw between whiles, and his wind will appear good.

Another for a broken-wind.

Diet your horse for a fortnight, with straw, chaff, and bran, and keep him from work, and four days after give him the following pills :

Take agaric, aloes, round birthwort, of each half an ounce ; elecampane, flour of brimstone, common honey, liquorice powder, of each one ounce. Pound all these drugs, mix them with fresh butter, and make them into balls ; roll your balls in sugar, or liquorice powder, and give them
every

every day, eight or ten days running. This will very much relieve.

A powder to mix with the oats of broken-winded horses, or horses that have an inveterate cough.

Take a bar of iron or steel (iron is best, though steel be most used) and heat it at the forge, till it comes out almost white; then take a large piece of sulphur, thrust your iron against it, and as it melts, let it run into a pail of water. When the intense heat is over, put it again into the fire, till it is as hot as before, and continue thus to put it to the brimstone, till you have melted four or five pounds, more or less, as you have occasion. Three pounds of sulphur skilfully managed, will melt five or six pounds of iron or steel. The sulphur falls into the water with the metal, but you must leave it there, because when you take out what is melted, you must dry it, and reduce it to powder in a mortar, and pass it through a fine sieve, sulphur and all; take an ounce, or an ounce and a half of this, according to the corpulence of your horse, and mix it with his scalded bran. Some give this for a month, or even six weeks together, without perceiving any effect; but this should not hinder them from continuing it two months upon occasion, by which time it will certainly do good. You must not throw away the water in which the metal was melted, but

3 U 2

give

give a quart of it to the horse every morning, by way of draught. There have been those who have used file dust for the same purpose, but it would be long before one could get a sufficient quantity, nor is that ever so fine as this powder, which therefore, is a more effectual and sovereign remedy.

Balls for a broken-wind.

Stamp eight heads of garlic, and two ounces of horse-radish, in a mortar, then add to them three ounces of flour of brimstone, and make them into a mass, with a sufficient quantity of sweet oil; divide the mass into four balls, and let the horse have one of them in the morning, and another in the afternoon.

Another.

Take galbanum, and gum ammoniac, of each half a pound, let them be well pounded in a mortar, with a quarter of a pound of flowers of Benjamin, adding, by degrees, sweet oil, till it becomes a paste fit to be made into balls, weighing each two ounces. Give one in the morning, and one in the afternoon, two hours after watering.

Heaving of the flank.

Horses that are attacked with this distemper, seem as if they were broken-winded, which often makes their case seem doubtful; sometimes occasions

sions law-suits, and leads ignorant practitioners into the use of wrong means. Dealers have been obliged to take their horses again, through the suspicion of the buyers, who were unacquainted with the distemper we are treating of; and others have sold horses that have been really broken-winded, under the notion of their being only over-heated, and newly taken up from grass. This accident often happens to horses that have been over-rid, or have eat what is unwholesome, as damaged hay, dusty or musty oats, or such drugs as the jockeys give them to make them fat of a sudden. These drugs seem at first to do them good, but they only heat their inside, make them infirm, and bring on the heaving of the flank. It is known by the wheezing of a horse, and the continual motion of his flanks; his bowels are tucked in, and so drawn together, that he may become bursten. The cure should be speedily undertaken, and in the following manner:

A remedy for the heaving of the flanks.

Beat up a pound of bacon into a lump, and soak out the salt in river water; then take flour of brimstone, honey of roses, powdered aniseeds and fennel-seeds, of each two ounces; roch alum one ounce.

Make this into ten or twelve pills, each as large as a nut, in the following manner: when your
bacon

bacon is well soaked, cut it in very small pieces, and pound it in a mortar, and then add the drugs above mentioned; after having powdered the fennel-seeds and alum with a sufficient quantity of barley-flour, make the whole into pills, and let the dose be more or less, in proportion to the strength of the horse. Two or three of a morning, is the quantity nearest a medium. The horse should be tied up five or six hours before taking them, and three or four after. You must feed him only with scalded bran; and if the dose prescribed is not sufficient, repeat it in double the quantity, till the beating of the flank abates. Above all, take care to give him airings, without any fatigue.

Another for a heaving of the flanks through fatigue.

Take juniper berries, and wild sage dried, of each two ounces; bay berries, and gentian-root, of each three ounces; saffron, half an ounce; having powdered the whole, tie it up in a linen cloth, and put it into a pail of water, which you mean to give the horse to drink; after he has drank, fill the pail again, and leave the drugs to steep in this manner; the composition will serve two days, and then you must put in fresh, till the horse is well. During the whole course, put the following among his oats or bran:

Fenugreek-feed, and the root of mezereon, of each one pound; gentian-root, two pounds; the herb

herb favin, dried, half a pound ; powder and mix these, then put a spoonful of the powder into his oats or bran every time he eats, pouring on water that you may mix them the better ; it will soon produce very good effects.

Another for the beating of the flanks, occasioned by straining.

The beating of the flanks occasioned by a strain, whether through a hurt on the part by falling, or by leaping a hedge, or a gate, is very dangerous, and will kill a horse without speedy relief.

You must observe if there be any swelling or bruise, which the horse will generally point out himself by turning his head that way ; when this is the case, lose no time, for the place may suddenly mortify ; to prevent which, apply the following remedy :

Take bole-armenic, greater comfrey-root, and black pitch, of each four ounces ; sal ammoniac, dragons-blood, and frankincense ; of each two ounces ; wheat flour half a pound ; vinegar, two quarts ; dry the drugs well, and having powdered them, take six whites of eggs, and put them in a large bowl, in order to mix the powder and the vinegar with them ; apply this hot to the part, after having shaved the hair, and cover it with a sheep-skin, bound on with leather thongs. Let it remain twelve hours, and repeat the application two or three

three times, till the horse is relieved. In the mean time give him some cordials, in order to strengthen him, and drive the distemper out ; give him no oats, but scalded bran, and a little stale rye bread, for that which is new would clog up his teeth. A horse treated in this manner, will very soon be out of danger.

A remedy for a horse that is over-heated and straitened in the flanks.

Take a pint of sweet oil, and as much milk, fresh from the cow ; mix them together, and give them to the horse a little warm ; then walk him in the air a quarter of an hour, and keep him from eating two hours after as well as before taking it ; water him with fair water, as soon as he comes back into the stable. The two hours being expired give him a feed of scalded bran, but no oats ; repeat the remedy five or six times, once in two days ; and let his feed all the time be the same. A little barley, just broke in the mill, is very good for him in this case, and will contribute to a speedy cure.

Chest-foundering.

This distemper is much like the former and proceeds from the same causes, which makes some persons call them both a heaving of the flank, without any distinction. A horse may contract it
by

by being lame behind, whether in the haunch, the leg, or the muscles, or from any long fatigue either in the army or elsewhere. A horse that is delicate may avoid eating through mere indifference, till his bowels are contracted, and he looks lank and thin like a grey-hound; a mare may be sooner brought to fill out again, than a horse, by getting her covered, which is a secret that dealers make use of, in order to sell their mares, but as this stratagem is not universally received, the most ready cure is by the following medicines:

A remedy for a chest-foundered horse.

Refresh your horse first with scalded bran, depriving him of oats; some days after bleed him in the neck-vein, next day give him a purging clyster, and in the evening, the purge as in this Appendix. Feed him with the best hay you can get, and whenever you give him bran, take a pail half full of it, and then fill it with water; having mixed them well to blanch the water, you may dissolve in it half a pound of honey each time; this water will serve but once, because it will grow sour in a night's time, especially in summer. If the horse will not eat the bran that is at the bottom, after he has drank the water, take it out in balls, and put them into the manger, with a few handfuls of beans, to provoke his appetite. You may also give him beans to make him drink the

water, but they must be the small marsh beans, such as are thrown to pidgeons. During this course, rub his flanks with good oil every evening and morning, and endeavour to loosen, as it were, the skin of his belly with your hand, gently, and by little and little, taking care not to hurt him. It must be owned that this is a work of time, but it will certainly cure the horse in the end. The horse should have several purges during the course of this distemper.

Another for the same disorder.

Treat your horse as before directed, and in order the sooner to make him belly, take vine-branches, and reduce them to ashes; when you have four ounces, sift them through a sieve, and beat them up in a bottle of wine. Let the horse drink four ounces of sweet oil, and then give him the wine and ashes through a horn; repeat this remedy every other day, till the horse apparently recovers, and never neglect your clysters when his dung is hard and black, but when that is in good order, clysters are no longer necessary.

When you cannot get vine-branches, use elder-shoots in the room of them, but vine-wood is abundantly the best. Take great care you do not rub the skin of the belly too roughly, for you cannot here go too tenderly to work.

Worms.

Worms in horses.

There are many different kinds of worms, and as many different remedies proper to destroy them. To come at the knowledge of this distemper, you must observe, that a horse who has worms, grows meagre, and his hair curls and frizzles, he looks dull and melancholy, and falls away visibly, give him whatever you will. To be more certain of this case, examine his dung, and you will sometimes find it dry and powdery, and mixed with worms that get loose from the great gut; sometimes they keep behind, but still the dung is dry, and will not hang together. Another certain sign of worms is, when the horse appears very uneasy, and every moment directs his head to his belly, sometimes on one side, sometimes on the other, as if he would shew what ailed him. In this case it is necessary to rub the hand and the arm up to the elbow with oil, and introduce it into the fundament of the horse, first cutting your nails very short, and taking care not to scratch the great gut as you pull your hand back, when you have got in it all the worms you can find. As for those that are in the other bowels, where the hand cannot possibly be admitted, you must get rid of them by the following remedy :

Prescription for worms.

Take Æthiops-mineral, three ounces, and the same weight of fresh butter, to make it up into pills, which you should roll in liquorice powder, and give the horse fasting, keeping him so three hours after; in a short time the worms will die and come out with the dung.

Another remedy.

Take fresh-drawn linseed-oil, four ounces; gentian root, powdered, and flour of brimstone, of each one ounce; mix the whole in a pint of white-wine or ale, and infuse it in a pot, close stopp'd, over hot embers, for a draught. Give it [the horse warm, and let him fast two hours before and as long after taking it.

Another.

Take Succotrine aloes, agaric, and scammony, of each one ounce; butter without salt, or hogslard, eight ounces; make the whole into pills, with cordial powder, at your own discretion, in order to give them a firm consistence. The use of these will clear a horse of the worms.

Another.

Take crocus metallorum, in powder, and every time the horse eats oats, put an ounce of it among them;

them; continue this for some days; either of these remedies will do the business.

Swelling of the testicles.

This distemper usually proceeds from some strain in working, or from the horse being continued too long in the stable, or from his putting one leg over any bar, and being checked by the halter, or from any other accident that confines a horse, makes him kick and fling, and bruise his testicles. There is no other way of knowing this distemper but by some outward swelling upon the part. The coming down of the testicles proceeds from the same causes, with this difference only, that it is a long time in discovering itself, whereas the other may come in one night.

A pultice for the swelling of the testicles.

Take about four ounces of the juice of leeks, two ounces of common salt, four ounces of the stalest leavened dough, two ounces of the juice of rue, two handfuls of rye-flour, and about a quarter of a pound of hogs-lard, ready melted; boil the whole with a sufficient quantity of vinegar to make a pap, about as thick as that for children, and apply it spread thick like a pultice.

Another.

Another.

Take bean-flour and vinegar, and make a pap as before; add a little salt, and use it as the other.

Another.

Take leeks and the crum of white bread, an equal quantity of each; pound them with honey or new milk; boil the whole together, and make it of a proper consistence to apply with tow upon the scrotum, covering it with an ox's bladder; fasten it on with a bandage, and apply it fresh twice a day, a little warm, continuing the use of it till the swelling lessens; if this remedy is properly applied, the horse will soon be cured.

Another.

Bleed the horse in the flat of his thighs, then take the flour of wheat and linseed, turpentine, and oil of St. John's-wort, each four ounces; ointment of poplar-buds, two ounces; mix the whole with vinegar, and make a plaster for the reins of the horse, which will very much contribute to assuage the swelling of the testicles. This may be made as soon as a pultice.

A remedy for another sort of a swelling in the testicles.

The swelling we mean, and which has not yet been mentioned, proceeds from a collection of humours

humours which descend on the part, and occasion great pain; and these humours are very often the effect of eating grass too tender; they may likewise proceed from a horse carrying too heavy burthens, having worked too hard, or eat too much; when nature is over-charged, the obstructed digestion causes ventuosities which swell these parts. To know when the distemper proceeds from this, take your horse abroad into some water, as high as the bottom of his testicles, and if the swelling sinks, you may be sure it proceeds only from humours; and in that case, have recourse to the following remedies:

Take potters-earth and dilute it with wine, stir it well till it becomes very liquid; then warm it, and with a sponge dipped in it, foment the testicles and sheath.

If this does not cure him, add the juice of garden night-shade and rose-water, an equal quantity of each; and as much of both as you had put of wine to dilute the earth; apply this five or six times a day till the horse is cured. If the swelling proceeds from his having worked too hard, or carried too heavy burthens, you may know it by touching the affected parts, and feeling a hardness cleaving to the skin; in this case, use the following remedy:

Dry beans in an oven, reduce them to flour, boil that in vinegar, and make a plaster to apply to the testicles, binding it on with a bandage.

Another.

Another.

Take a large quantity of leys of wine, cummin, and beans, boil up the beans first, to skin them, and then boil the whole well together, and make an addition of vinegar. Put this composition into a bag that will cover the scrotum, and apply it as warm as the horse can bear. You may repeat the application twice a day, and if an increase of the swelling be very considerable, three times.

A remedy against the gangrene.

It is proper to say that the following composition will keep a long time, provided it be in a dry place :

Take green and white vitriol, roch alum, sealed earth, Venetian cerus, of each one ounce; reduce every drug into powder separately, then take a clean earthen pipkin, well glazed, and put in it two ounces of spring water. Throw in each powder by itself, first the alum, then the green vitriol, then the white, and afterwards the others, stirring continually with a wooden spatula, till it becomes a little hardish; then let it dry upon the fire, till the whole is as hard as a stone; after which take off your pipkin, and let it stand till next day to cool, in some damp place, that so it may disengage itself from the bottom of the vessel, which it does easily, if that be well glazed. But as a gangrene will admit of no delay, you may
break

break off some bits of the stone while it is warm, and apply them pulverised to the maimed flesh which begins to mortify. There is no other way of using this stone.

Another for the same purpose.

Take green balm, either out of a garden or field, pound it, and express the juice; then take the same weight of mutton suet, with a handful of common salt; put the whole into a pot, or pipkin, and just boil it up; strain this composition through a piece of fine linen, and apply some of it fresh every six hours to the beginning mortification, till you see new flesh appear.

A remedy to hinder the gangrene from reaching the heart.

Take assa-fœtida, bole-armenic, and flour of brimstone, of each three ounces; powder the whole, and put it in a bottle of wine or ale, and give it the horse in form of a draught. It will hinder the gangrene from spreading farther.

Another.

When you see the gangrene seize any part of a horse's body, take the essence of turpentine, and warm it in some covered vessel, which the air cannot enter. Wash the wound with this essence, and then cut off what dead flesh you can come

at. Put corrosive sublimate powder upon what you cannot cut off, and apply tow dipped in the essence upon the wound, which must be dressed in that manner twice a day till it is cured. When the dead flesh is all gone, the sublim ate can be of no service, but as the gangrene will cause an inflammation, make use of the following fomentation:

Fomentation.

Take roots of marsh-mallows, bruise and boil them in a sufficient quantity of water, till the water becomes thick and muddy, then take it off the fire, and when cool, rub the horse with it hourly, till the inflammation dissipates.

A remedy against internal venom.

When a horse loses his appetite on a sudden, and swells all over the body, it is a sign of internal poison, perhaps from having eat something venomous among his hay or grafs. Let the first thing you give him, be a draught of the following kind:

A drink.

Take juice of mullein, and oil of olives, of each two ounces; mix them together, and give the horse. Let him take upon it a pint of white-wine, and ply him with laxative clysters between
whiles.

whiles. If the horse is not relieved by this drink, depend upon it the poison is very violent; in that case have recourse to Venice treacle, which use in the following manner: take Venice treacle four ounces, oil of olives two ounces, dilute the whole together, and mix it with a bottle of white-wine, which give for a draught. If the venom has not affected any of the noble parts, you may promise yourself a cure.

A remedy for the bite of a serpent, or other venomous animal.

If a swelling comes on any part of a horse's body, inspect it carefully, to see if there be no prick or bite capable of causing this inflammation; for there may chance to be some serpent or other venomous animal in the stable, especially in the country, though the same thing may happen in a town, in any nation whatsoever. There is in Holland, a kind of venomous little beast, called a shrew-mouse, somewhat less than a common mouse, with a more peaked nose, and of a greyer colour; its usual residence is in stables, or in stalls, and its bite is very venomous to all sorts of brute animals, and even to mankind. Lose no time when its bite appears, but prepare the following remedies, which are easily come at, where-ever you be.

Take a pointed burning iron, make it red hot, and apply it to the part bitten, thrusting it as far as you can, provided there be no nerves in the way that may endanger laming the horse. One hole is not enough, you must make five or six round the wound, and dress them with essence of turpentine, and oil of spike, mixed in equal quantities. For want of these, you may use brine, or water well seasoned with common salt, or the following ointment: Take green cole-wort leaves, and hogs-fat, the same weight of one as of the other, pound them in a mortar to an ointment, with which dress the wound; you must not have recourse to the common counter-poison, and to purging, in order to evacuate the ill humours, for fear the venom in the mean time should corrupt the whole mass of blood, and when that is once done, the best remedies will be ineffectual, and death must inevitably be the consequence.

How to purge a horse gently, and to fatten him.

Take about a dozen of starlings, put them in a large copper just as they are, guts, feathers, and all, boil them till they drop to pieces, and then having taken them out of the water, pound them in a large mortar, put them again into the same water, and give them another boil; strain the whole through a fine linen cloth, and see that you have about six quarts of the jelly, of which
give

give the horse one every morning, having mixed with it half a pound of bean-flour. Never put in your flour till just as you are going to give the horse his draught. You should get a good flock of starlings, that you may have enough to serve the horse fifteen or twenty successive mornings. Give him frequently a small quantity of hay to provoke his appetite, which too much at a time will cloy. Before he drinks, let him eat a handful of whole beans, and get the cleanest oats you can, to feed him with three times a day. There are few horses that will not grow fat when managed in this manner.

Another way to effect the same.

First, keep your horse always with an appetite, feeding him little and often. Give him oats three times a day, putting into them every time a handful of nettle-feed, and let him constantly drink warm water, blanched with bean-flour; or for want of that, wheat-flour. In three weeks or a month, this will make him fat.

Another way.

Instead of oats, feed your horse with wheat, half-boiled. Let his water every time be blanched with wheat-flour, and before he drinks, always give him a handful of fenugreek mixed with a handful of oats, in order to warm his inside, and
make

make him often thirsty, for the more he drinks, the sooner he will be fat.

Another.

When you have a mind to fatten a horse, give him, instead of oats, a peck of rye-flour, morning and evening, made into a paste, and rolled up in balls. You have nothing more to do but to give him hay, a little at a time, and often; and now and then a peck of beans, just par-boiled, watering him with blanch'd water, in which leaven has been steeped. This will fatten a horse in three weeks or a month, and make him fit for sale.

To give a horse an appetite.

Take honey four ounces; pepper and starch, of each one ounce; violet leaves, nutmegs, barley-flour, of each half an ounce; mix the whole together, and make it into balls, which roll in liquorice-powder. After each ball, to drive it down, make the horse swallow a quarter of a pint of antimonial wine, given through the horn.

A remedy for cancers in the mouth, or upon the tongue of a horse.

Take three or four large leeks, and pound them well; an ounce of powdered alum; two ounces of honey; half an ounce of broken pepper; and
an

an ounce of salt. Put the whole in a quart of verjuice, or the juice of lemons, and wash the cancers with it three or four times a day, till they are cured, which will not be long.

For a horse whose tongue is cut by the bridle or halter.

A horse often cuts his tongue in the place where he mouths the bridle, or the halter crosses him. To remedy this when it happens, take human urine, salt, honey, and pounded pepper, mix the whole together, and wash the tongue with it seven or eight times a day, with a linen rag. Or put the ingredients together in a rag, and tie them up for the horse to hold in his mouth four or five times a day, an hour each time, the quantity of honey being increased to keep the other ingredients together. This last manner, in fact, is better than the former, and will soon cure a recent wound on the tongue. A hurt of this kind should never be neglected, because the tongue of a horse that has been cut, and not presently healed, is apt to make his mouth rough, which is discovered by his tossing about his head, and opposing the hand.

Another for the same purpose.

Take dried figs, such as are sold at the grocers, pound them to a mash, and mix with them the
same

same weight of honey, to make a composition for holding in the mouth, like the preceding.

Pills for a horse in a sick and languishing condition.

Take fresh butter eight ounces; honey of roses four ounces; fenna-leaves, coriander-seed, and mithridate, of each one ounce; bitter-apple, bay-berries, and saffron, of each half an ounce; sugar two ounces; powder and mix the whole well, and make pills for two doses, to be given two successive mornings, and wash them down with a little wine. The horse should fast six hours before, and as many after taking this remedy.

Another way of purging a horse.

Take Succotrine aloes, ten drachms; fenna-leaves one ounce; ginger in powder, three quarters of an ounce; sweet oil, one pint; mix the whole together, and give it the horse, after he has fasted all night; keep him six hours longer without eating or drinking, and then give him scalded bran, and blanched water. The next day, at the same hour he took his purge, give him an airing, if it does not work; and when it begins to operate, put him up again into the stable, cover him warm, and from time to time give him scalded bran, or even scalded oats, but in very small quantities, because his stomach will then be weak. Purges take away the appetite of a horse,
which

which must therefore be restored with assa-fœtida, or some cordial composition.

A water proper for all sorts of wounds.

Take round birthwort and powdered sugar, of each two ounces ; boil the birthwort in a quart of white-wine, till it comes to a pint, and then strain the whole through a fine linen cloth, and keep it in a bottle for use. You need only wash the wound twice a day with this water, in order to keep it clean, without any other application ; and if it be fresh received, this alone will soon heal it.

How to dry up any wound.

Wash the wound once a day with warm wine, and if you melt a little sugar in it, so much the better ; then take the powder of rosemary-leaves, and sprinkle on the sore, which will soon dry away.

An excellent suppurative for the corns or kernels that come on a horse's back.

In the first place take oil, or any warm ointment, or for want of that, hogs-grease, the oldest you can get ; with this rub the corns, and it will make them fall off ; then dress the wounds with oil of turpentine and lint, made of old cords beat to a powder. As you put on the oil of turpen-

tine, sprinkle the lint-dust upon it, which will bind it together, and stay on the part. Continue this course till the horse is cured. Other medicines might be prescribed, which would be harder to get, more expensive, and yet no better.

Another suppurating ointment.

Take of sweet oil two ounces; yellow wax, Venice turpentine, black pitch, black and white rosin, mutton suet, and hogs-lard, of each half an ounce; melt the whole together over a gentle fire, and reduce it to an ointment, which you must preserve with care. It is good in all cases where suppuration is wanted.

The best way of cutting off a horse's tail.

You must shave off the hair in the place you design for the operation, raising up and turning back what you intend to preserve. Then take a bar, or thick piece of wood, of just a proper length to support the tail when set on one end, hold it upright with one hand, lay on the tail, and with the other hand, clap across it a sharp hedging bill at the proper place, which must be struck through with a hammer, or mallet. Some ignorant people put the bill under the tail, and strike on the latter, but this hurts and bruises it, and may be attended with bad accidents. The tail being cut off in this manner, you must take a hot
fearing

fearing iron, made in the form of the letter O, and apply it gently to stop the blood; then take rosin, and put a little of it to the end of the stump, clapping to the iron which has now lost some of its heat, to melt it. Put up your horse again in the stable, but take care he does not stand near any wall, or partition, against which he may rub himself, for some horses have killed themselves by that means, having brought a mortification into their tails. When the operation is over, you must rub the tail quite to the cross of the reins with brandy, continuing to do so night and morning for some days. If the horse should unluckily rub and fret the part, or the stump should be bruised, or too much burned, you must rub quite to the cross with spirit of turpentine and brandy, beat up together in equal quantities.

It is proper for one to stand behind the horse with a whip, to keep him from flinging about, and so to prevent any accidents.

The manner of gelding a horse well, and treating him during the cure.

There are many different ways of gelding a horse, some whip them, that is, after they have made an opening in the scrotum, with a razor or incision knife, so that the testicles come out, they bind the roots of them with pack-thread, or

cobblers-end, and then cut them off below the ligature, cleansing the inside of the scrotum with oil only, or oil mixed with wine. Others billet them, that is, they take a hasle-stick, of moderate thickness, split it through, take out the pith, and make acavity the whole length, which they fill with powdered vitriol, verdegris, or sometimes with sublimate; with these sticks they take hold of the horse between the testicles and the belly, tying them on as tight as possible, and leaving them nine or ten hours, by which time the parts will entirely fall off. Neither of these ways are bad in themselves, but they are not proper for a horse that has a rupture, nor one whose strings of his testicles are large and swelled. We have no opinion therefore of either of these operations, and that which follows is much more convenient, especially as it may be performed at any age, or in any season, provided it be done skilfully.

You must lay down the horse upon his back, according to the custom in Germany, and put a large leathern strap round one of his hind legs, bringing it under his neck, and so drawing the foot near the shoulder, that you may have room for doing your work with freedom. Then take up one testicle, hold it fast in your hand, and with a razor or incision-knife make a large opening in the scrotum for the testicle to come out. You must use a delicate hand in dividing it from the strings and ligaments, which form a sort of SS, and

and then the testicles extend in length. If he be a vicious and dangerous horse, you must cut it off as near his body as possible; but if he be a quiet one, divide the strings as near as you can to the testicle.

Having got the testicle out, take a piece of plate-iron, about two inches broad, and the thickness perhaps of a crown-piece, clasp the testicle within this, and squeeze it close; then take a wet dish-clout, and put it between the said plate and the scrotum, and cut off the testicle with a hot iron; throw on some bits of sulphur before you take away the iron, and burn them on the part; and, lastly, rinse the scrotum well with fair water. Proceed in the same manner with the other testicle.

Before this operation, you should draw the horse's yard out of the sheath, and cleanse it well with water from all filth. This will, in some measure, prevent the greatness of the inflammation, and of the subsequent pain. All the farther care required is, to keep the horse from wind, in a very close stable, and to wash his belly seven or eight times a day with fair water, cold in summer, but warm in winter. If the inflammation becomes very great, which sometimes happens, you must frequently wash the scrotum, sheath, and all that is swelled, with cream, till the symptoms disappear. During the whole process, you must give the horse no oats, but as much scalded bran as he will eat, and let his water be blanched, and a little warm.

Though

Though we have said that all times are equal for this operation, yet the spring is the most advantageous season; unless necessity urges the contrary. The horse preserves his hair better, and keeps it smoother at that time. We must observe farther, that if a horse is lean and meagre, when gelded, he will never grow fat again, nor have a good coat, even though the operation be performed in autumn; and that there is most danger of a mortification when it thunders, which weather therefore should not be chosen. Some have a charm against this ill effect, which we omit, as equally idle and superstitious.

We had forgot to tell you, that during the cure, beginning the morrow after the operation, you must walk your horse abroad three or four times a day, a quarter of an hour each time, if the weather be fine and no wind stirring; when you cannot take him out, walk him in the stable, in order to make him evacuate the matter from his wounds; every one knows that his fever will increase nine days, and be as many more in going off; but if the method here laid down be observed, he will recover in a very short time.

Hurts on the withers, or wither-wrung.

This accident is common in the army, either through bad saddles, or bad pannels on the horse; of burthen, or sometimes through the trusses of forage

forage being ill made up. It is very easy to discover, because it begins by a swelling, which proceeds from the extremity of the chest, just between the movement of the shoulders. Many horses are lost through this misfortune, and the ignorance of those who take them in hand, who apply outward remedies to bring the swelling to a head, which they afterwards open. When they have done this they are usually unable to prevent ulcers or filanders in the middle of the wound, which grow to the adjacent joints, and then a humour often flows down between the shoulder-blade and the body; then all their skill is at an end, for the matter having no longer an outward drain, the horse of consequence dies, merely because the process was not made as it ought, and according to the following directions:

To prevent such an accident, as soon as you perceive the swelling above described, let the cause be what it will, you may hinder any collection of matter by this composition:

Take the whites of five or six eggs, and beat them up to a froth; then take an ounce of crude roch-alum, which reduce into a fine powder, and mix with the eggs; adding, after you have well mixed them, about a glass of spirit of turpentine; beat up the whole again, and add a small quantity of brandy; continuing to beat it till it comes
to

to a kind of pappy consistence, with which you must rub the swelling three or four times a day, and in a little while it will be entirely gone. In case the swelling was far advanced when you took it in hand, and some matter already formed, there will be no great damage. The matter will discharge itself by continuing this remedy. This German mode of practice, in some cases, we do not approve of.

Another remedy for the same disorder.

If you are in a place where you can have none of the articles before mentioned, take brandy, and dilute in it a bit of soap, and then rub the swelling with it, till you make a lather; repeat this every three or four hours till the tumour dissipates. When you cannot get brandy, use urine, brine, or water well salted, with the soap; but these must be used ten or twelve, instead of three or four times a day.

If all other means are wanting, as soon as you perceive this disorder, take a green turf out of some meadow, with the earth sticking to the roots, and apply it to the swelling on the grassy side, renew this every three or four hours till the tumour disappears; or till you have furnished yourself with one of the remedies above mentioned.

Navel-

Navel-gall.

This accident proceeds from the same cause as the foregoing, and consequently must be treated in the same manner; what we call a hurt upon the navel, is in reality upon the kidneys, towards the cross of the reins, where the crupper and saddle-buckle join.

Of impostumations in the withers.

This is occasioned by suffering matter to gather in the swellings on the withers, and a most terrible disorder it is, in the army, especially in hot countries, where the flies are very troublesome. As the horse moves, the matter trickles down continually between his body and his shoulder, and as it can have no passage outward, because you cannot force one through the blade-bone, those who know not how to make the following operation, are obliged to give all such horses over :

You must first blind your horse, and throw him down on the ground ; then take a stake about as thick as your leg, four or five feet long, and sharp at one end, drive it into the ground with a beetle, and place the horse that it may stand just between his shoulder and his body, so that he cannot stir while you perform the operation, which is thus done. Tie a cord to the horse's foot, and about two yards distant drive another stake into the

ground, to serve as an axle-tree to a coach or a cart wheel, that you must put thereon; fasten the other end of the cord to this wheel, and then turn it about, till by winding up the cord, you extend the horse's leg as much as it will bear; you may then make an incision between the body and the shoulder, to the very top, to come at the matter behind the blade-bone, by an opening to be afterwards made. The incision is made with a flat-iron, somewhat crooked, about an inch broad, and as thick as two crown pieces; the curvity of this instrument is in proportion to the ribs, between which and the shoulder it must pass, in order to let out the matter that is lodged above. And for this purpose you must introduce a small rowel, from the top of the withers to the bottom, between the shoulder and the trunk, which may be easily done if your farrier has ever so little address. This rowel must be left in only twenty-four hours, and then let it be dressed like any common wound, which method will soon put your horse out of all danger, as the matter between the trunk and the shoulder will be discharged. You may make the rowel either with Hungary leather, or with tow and horse-hair twisted together, dipping it into warm basilicon. If at the end of three full days the matter does not run plentifully below, you may put the rowel in a day or two longer.

Never

Never forget, during the whole process of the cure, that your horse is to have no oats, but only scalded bran ; besides that, it is absolutely necessary to make him eat root of bastard rhubarb, or the herb patience, which grows in almost all countries, and is a kind of wild sorrel ; it shoots up in meadows, and by the sides of ditches, and sometimes is very large ; the root is yellow, like that of sorrel, but both stalk and leaves are much larger, though of the same colour, at the time of feeding. That which grows in water is best, and next, that which grows in fat land ; but for want of one sort the other may be used, and the more a horse eats of either, cut very small, the sooner will he be well. This root is also good for all other sorts of wounds whatsoever, and it is certain, that in a temperate climate, when the flies give no disturbance, a horse may be cured by means of this root only, without any great operation.

Faintness for want of nourishment.

This distemper is more common in the army than any where else, and occasioned by great heats and the long marches they are obliged to make. It oftener happens to brisk and lively horses, than to those that are heavy. Nothing more is wanted than to distinguish it ; when a horse falls down on a sudden on the road, without having eat or drank, the dust having got into his mouth,

and through his nostrils, stopping up the passages, so that he cannot breathe, and drops as if he were dead. Horses that are used to go in harness, either in coach or carriage service, are very subject to it. In order to cure this disease, you must take fair water, wash the head of the horse with it, pour some of it into his nostrils, into his mouth and into his ears; this will raise him in a little while; you may then let him drink, and he will be able to proceed on his journey. Horses that are subject to this disorder should not be neglected, but suffered to drink on all occasions that offer. The intestines of such horses are always narrower than in others, which makes them unable to bear hunger or thirst; it is much the same with men, some of whom can go without drinking more easily than others.

Of the poll-evil.

This is a very troublesome distemper, and proceeds from different causes, especially to large draught horses, who wear hempen halters, as those belonging to the artillery, the provisions of an army, or any sort of carriages; not but that others are also subject to it. Horses affected with it are apt to be frightened with every little thing, and pull as if they would break their harness to get loose, which occasions the halter to hurt them between the ears and the neck, where the head and
neck

neck join; and this, by degrees, becomes more and more painful; a matter at last forms in the part, which not being perceived, extends along the chest, causes an inflammation, and often makes it necessary to open the tumour along both sides of the mane, the length of half a foot, or more. In these sorts of wounds, which are made through necessity, care must be taken to use no fat ointment, nor an oily one, but of a restraining nature. This distemper is the more difficult to cure, as it is hard to keep the remedies on, and you must put no ligature on that part, but take a thick piece of linen cloth, and cut it about a foot square, that it may go between the ears, and extend along the mane. The cloth must be four or five times double, and fastened under with narrow tape, in order to keep on the remedies.

These accidents may be occasioned by a blow on the head, from a brutal driver, when a horse hesitates at passing any place. It is needless to multiply remedies that are proper for such wounds, because they who have dressed one may dress others.

Of a shoulder-slip or shoulder-wrench.

It is common, for want of knowledge, to confound the disorders of a horse's shoulder, and only to say of each, that it is a wrench, or a slip; but it is proper to know that a horse may lame his
shoulder

shoulder different ways, and without ever straining himself in the least ; this distinction ought to be judiciously made, to prevent any mistakes that may ensue.

A horse may be lamed, in the first place, by having been ill saddled, that is, by having the saddle put too forward, and rode on by a heavy man, who neither knows how to place himself, nor to adjust his stirrups ; if one stirrup is longer than the other, the man consequently bears more on one side than the other, and the saddle-bow pressing most against one shoulder, must of course bruise it in a long day's journey, consequently the horse may be lamed without making one false step ; in this case you apply to a farrier, who tells you the horse has slipped his shoulder, and that his case requires great care and pains ; he is paid as a skilful man, though, perhaps, all the while, he is a mere blockhead, and the horse renews his malady for want only of mending the saddle. You put him in the hands of another equally as ignorant, who treats him in the same manner, and leaves the saddle just as it was. After the poor beast has remained for some time in the stable, a fresh rider mounts him, and changes the saddle, perhaps by hazard, or makes the stirrups even, and rides him without ever laming him ; this is evident enough that the saddle, in such cases, ought to be inspected, and made to fit the horse properly,

A horse

A horse may lame his shoulder by coming hastily out of a stable, and running it against the door or the post, or by a kick from another horse. Your farrier then cures him by the help of ointments, and in the eyes of ignorant people, goes for a skilful doctor.

A horse that has, in reality, an extension by a strain within the shoulder, between that and the ribs (having no joint there that holds those parts together, as the haunch is fastened to the body, nor any other ligament but fibres and tendons) such a horse, who has this misfortune, is not to be cured by remedies applied without the skin. For how should their ointments penetrate through the shoulder-blade, a solid bone, to cure the disorder underneath it? This can be done no other way than by manual operation, as shall be shewn in the article of true shoulder-slips.

There is another sort of cause that may make a horse lame in the shoulder, without his having ever strained himself, or received any accident. He limps now on one side, now on the other, and sometimes on both, not being able to stand upright. This case is the most difficult of all to cure, as it proceeds from nature; the horse having been got by a Turkish or an Arabian sire, whose shoulders were extremely flat and narrow, and close as it were together; some persons never observe this, and are satisfied when they go to a stallion,

stallion, if he looks well, whether he be either a Turk or an Arabian. Now to come at the knowledge of this defect, when you see a horse whose shoulders are close together and quite flat, instead of being fleshy, there is little good to be expected from him ; such shoulders make a sort of diminished circle, from the bottom to the withers.

Almost all the farriers are mistaken when they apply rowels in this case, as they make the shoulder leaner and leaner, and render the horse useless, and perhaps in a short time kill him ; whereas they should endeavour to nourish the part, which is what it wants.

A course of remedies follow, in proper order, for the several accidents in the shoulder that have been here enumerated :

For a horse that has been lamed in the shoulder by the saddle.

If you are in a place where drugs can be easily got, take spirit of turpentine and brandy, an equal quantity of each ; beat them up together, and rub all the part that has been hurt by the saddle ; put your saddle farther backward when you ride him again, which may be the next day, or the day after. If you have no spirit of turpentine take soap and brandy, and rub against the hair till you make a lather ; repeat this three or four times following, as fast as it dries in, and thus you may cure your horse

horse while you proceed on your journey. For want of sope, you may use roch-alum; and for want of brandy, urine. But if you can get spirit of turpentine, the whites of eggs, brandy, and urine, the best way is to make a composition of them all, as directed for horses hurt on the withers, and rub the horse with it four or five times, which will effect a cure; you may use the same remedies in other places above mentioned; but if the inflammation be great, the disorder of long continuance, and one shoulder appears thicker than the other, you may introduce a rowel, which should be made with tow, dipped in warm ointment of basilicon; keep it in a fortnight, and, in the mean time, rub the shoulder with the following ointment:

Take ointments of marsh-mallows, poplar-buds, roses, oil of bays, and honey, of each two ounces; melt them together, and stir the composition till it is cold; then use it once every day, and make more if this be not found sufficient. The rowel will draw the bruise the horse has received to a suppuration, and the ointment will nourish the skin and keep it from shrivelling.

It is not proper a horse should do any work while he is under this course; but even if one is in the army, or upon the road, we may expect a cure from pursuing it closely, though not so soon as by giving him rest.

A remedy for the cooling or chilling of the shoulders.

In this disorder a horse cannot support himself before, and has very little motion in his shoulders, as if they were rivetted or bound together. Some persons, for want of knowledge, take this to be a foundering, whereas foundering hinders the motion of the legs, and a cooling or chilling of the shoulder, affects the shoulder only. This distinction being made, you may treat your horse in the following manner :

First, make him swim, as the farriers call it, on dry ground ; that is, tie up one of his fore-legs, bent at the knee, with a broad leather strap, then walk and trot him upon three legs, till his one leg before can no longer support him ; exercise him in the same manner upon the other leg, and afterwards bleed him in the plate-vein, and rub his shoulders well with the blood, and over that with spirit of turpentine, oil of spike, oil of petre, and brandy, mixed together in equal quantities ; sprinkle rye-flour over all, in order to make a sort of crust upon the two shoulders, which should be refreshed once a day, for seven or eight days running, with oil of bays ; and afterwards with an unguent made of the ointments of marsh-mallows, poplar-buds, and roses, mixed up with honey, an equal quantity of each ingredient. You may continue to rub the shoulders of the horse with
this

this composition, once every day, for three weeks or a month, in which time it will comfort him greatly; leave him afterwards five or six weeks in the stable without stirring out.

As the humours may possibly descend into his feet, you ought to have his two fore-feet unshod, and pared well, before you begin the cure; then let his shoes be put on again, and from time to time stuff the hollows of them with cow-dung fried in hogs-lard, and after mixed with vinegar. By means of this remedy, you may prevent any such accident in his feet; if you rub his hoofs towards the crown with oil of bays, so much the better. If all these remedies are found insufficient, it is to no purpose to look after others.

A remedy for what is commonly called the shoulder-slip.

Before you undertake any thing about the shoulder, first have the horse unshod, and his feet pared, and shoe him again as even as possible; then make him swim on dry ground, as directed in the foregoing case; excepting that you must do it here with one leg only, and that you must keep the lame one to the ground; whip him on upon a trot till he sweats, and then throw him down, and drive two stakes into the ground to support him, one against the hollow behind his shoulder, and the other between the belly and the thigh, penning him up that he cannot stir; take a long

cord with a shackle to it, and fasten it to his foot, at the joint between the footlock and the hoof, and tie the other end to the wheel of some carriage, fixed according to the direction for a horse that has impostumated withers, in order to extend his leg in a right line ; you must then make an incision in the skin, between his trunk and his shoulder, as directed in the same article, and introduce your iron in three places, one in the middle to ascend almost to the top, and the two others on the sides of it, making with it a sort of fork with three prongs. These openings being made, you must have candles cast in flat iron moulds for that purpose, and composed in the following manner :

Get a flaxen wick of three threads, that may lie flat by each other, and having put it into the mould, take an ounce of Venice turpentine, an ounce of spirit of turpentine, an ounce of oil of bays, an ounce of ointment of marsh-mallows, two ounces of mutton suet, and half a pound of yellow wax ; melt the whole, add half an ounce of verdgris in powder, and having mixed it well in, fill your moulds ; when your candle is cold, in order to loosen and take it out, pass the mould over a wisp of burning straw, or some other flame, and then putting the candle in again, introduce the mould to the very bottom of the middle hole, by which you must begin. Your mould must be very smooth

smooth and even, and you should take a flat piece of wood, of the form and size of the candle, which you must introduce in its place, as you draw out of the mould, in order to leave the candle behind. Fill up the two other holes in the same manner, and then, with a large needle and a coblers-end, flitch the skin together in the middle, to keep all in; then let your horse rise, and put him in the stable, where a place must be prepared with planks for him to stand upon, so even and smooth that one leg cannot be higher than the other. This is contrary to the practice of some farriers, who put a high shoe upon the well foot, which often makes the legs uneven, by suffering the other shoulder to descend, and so lames a horse for his whole life after. When your horse is in the stable, take a large towel, and tie his two feet as close as possible, as if he was fettered. Bind him in the same manner at his knees, so that he cannot bend them. You must renew the candles every day, and every day diminish their length, till the holes are quite filled up.

It is necessary also, to fasten your horse in such a manner, that he may not lie down for forty or fifty days. This is done by four reins, or thongs, tied two to the rack, and two to the manger, leaving him barely room to eat his bran, for corn he must absolutely have none, during the whole cure. As the ligatures may occasion the horses
legs

legs to swell, it is proper to rub them every day with leys of wine. At the end of forty or fifty days take off the bandages, as well as the two reins that were tied to the rack, and litter him well. Perhaps it will be some days longer before he lies down, but he will do it at last, and the swelling of his legs will dissipate. You must not take him out of the stable, however, for eight or ten days after this, and then you may give him a gentle airing, taking great care not to turn him on the side where his disorder lies; this should be observed a long while, and if ever there be an absolute occasion to turn, in that case, take as large a circle for it as you can.

Though a horse may be able to work gently in a month after he comes to lie upon his litter, yet he ought not to be put to it for five or six months; we advise no person, therefore, to perform this operation except to a horse of great value, unless he does it by way of experiment, because it will cost him much labour and money. To nourish the affected parts during this cure, make use of the ointments that are prescribed in the article of Withered Shoulders, rubbing in some of them once every day. We do not advise any to undertake the operation here mentioned, because it is uncertain, barbarous, and stupid; we only advance the copy of the practice of an Italian farrier, who invented this manner of treating what he
calls

calls a *flip in the shoullder*, and the different experiments, he says, have been made with success, but we doubt its being the best that ever was invented. Many of these experiments were also made in his most Christian majesty's stud, of which he mentions having been forty years an inspector; we hope his most Christian majesty, and every other monarch, has, at this time, more humane as well as more skilful farriers.

Of the sponge.

This distemper is not so dangerous as disagreeable to the sight, because it never makes a horse lame. It proceeds from his bending back his fore-feet when he lies down, so that the points of the shoes, or the frost nails, when he has any, press against the pit of the shoullder, just where the hand is applied to feel if he has a fever. This, in the sequel, causes a great swelling, a mass of foul flesh arises, and a large blister full of red humour.

If our grooms and hostlers were not so idle, it would be easy to get rid of this disorder, and quite dispel it at its first appearance, by only sponging the part with well or fountain-water, the coldest they could get, using a pail-full of it at a time, five or six times a day; in two or three days, at most, all the swelling will thus dissipate; but if it be neglected till the bladder of bloody fanies is formed,
though

though it does not lame the horse, it will be a long while in curing, in spite of all the remedies and operations you can have recourse to ; when the swelling does not give way to the cold water, prepare the following ointment :

Take cantharides, black-hellebore, and euphorbium, of each two ounces ; powder them all, and make an ointment with oil of bays and Venice turpentine, an equal quantity of each ; let it be made without warming, then shave off all the hair from the swelled part, and put on a large plaster of the ointment, making it fast with ligatures brought between his legs, and over his withers ; renew this plaster once every day, five or six days running, which will draw out all the noxious humour, and dissipate the swelling. It must not be thought strange if you find the skin fall off as well as the hair, because they will both come again more beautiful than before.

If the horse takes again to his old method of lying down, and another swelling appears, run a hot iron into it, at the bottom, to let out all the water, and then dress it as you would another wound. It is to be hoped that the pain he may feel in this operation, will make him leave this habit and take to lie on his shoes.

Stiff

Stiff Legs.

There are some horses, who, through the remains of an old distemper, or some fatigue, become so stiff in their fore-legs, that they can scarce bend their knees, which makes them stumble, and sometimes fall, when they are ever so little hurried, though even on a walk. When this is the case, you must endeavour to fortify the nerves of the legs and joints, by fomentation of marsh-mallow-roots, leys of wine, or any other medicines proper to supple and strengthen those parts; there are some good recipes for it in this book; but if in spite of all the good remedies you can use, the legs continue stiff, you must make the following operation under the shoulders, or, to speak more properly, under the breast, between them and the knees, as is pointed out in the explanation of the figures; you seem to feel a nerve very hard and stiff, which, in reality, is only a tendon; it lies just under the vein that we open for disorders in the shoulders, which may be justly called the *bow-vein*; here you are to make an incision with a razor or proper knife, descending along the tendon, and opening the skin about two inches; you will find this tendon separated, as it were, from the skin and the flesh, as if it was a nerve, which makes many call the operation *cutting the nerves of the fore-legs*. Having made this

opening with a stag's horn, or any such-like instrument, which is crooked and pointed; you must get under the tendon, in order to draw it without the skin; you must cut this in two, and the ends will draw in, the one upward, and the other downward; this being done in both legs, fill up the wounds with salt-butter, putting about three ounces of salt to half a pound of butter, and mixing them well; you must continue to dress it with nothing but this till a cure is effected.

As soon as the operation is performed, you must air him at least a quarter of an hour, and then put him again in the stable, filling the wounds with salt-butter; take him out every morning and evening, and pace and trot him, observing still to dress his wounds according to those directions when you put him up, and keeping just the same course till he is well. We would not advise you even to lead your horse upon any pavement, but only on plain ground; once every fortnight you may gradually shorten the corners of his shoes; this will in time make his legs as free as before; though, in fact, he will not have so much strength in them as another horse who never had this misfortune; he may be of use a long while if he has youth on his side.

Of an ox-kneed horse.

It is almost superfluous to speak of this defect, because it proceeds from nature, and can never be cured; we shall only point out what such horses are good for.

When you see a horse whose two knees bend in towards each other, and his feet go wide asunder, we call him *ox-kneed*, because oxen and cows have their knees made in the same manner.

These horses are by no means proper to ride; they are fit for nothing but the cart or the plough; in work of this kind, they walk only, and are boren up in the shoulder by their collars and harness, which makes them all able to do some service.

Of the three kinds of splents,

Solleyfell says, there is one of the three sorts of splents that ought not to hinder a man from buying a good horse; we mean the simple splent, which appears within the leg under the knee, remote from the great nerve, and the joint of the knee; here it gives no pain, is only disagreeable to the sight, and goes away in time of itself, which makes it useless to have recourse to remedies. We shall only give some for the two other kinds, which may incommode and lame a horse.

All the three sorts are known by the same rule; for whenever you see a tumour upon the flat of the leg, whether within or without, if it be under knee, and appears hard to the touch, it is a splent; and when it is situated as above described, it signifies nothing; but when it comes upon the joint of the knee without any interval, it loses the name of a splent, and may be called a fusee. It then makes the leg of the horse stiff, and hinders him from bending his knee, consequently it obliges him to stumble, and even fall, and after a little violent exercise makes him lame. Rest alone cures the lameness, but it will not cure the fusee.

The third kind of splent, whether within or without, is when you feel it between the nerve and the bone, and sometimes even at the end of the nerve. This is called a nervous splent, and is the worst of all the other kinds, as the horse is never here so firm footed, but he limps at every degree of labour. The French reject every horse that has a splent, very often without knowing how to distinguish them, and one that has only a simple splent, is as bad in their eyes as one that has the other sort; but a simple splent always goes away of itself, by the time a horse is eight or nine years old.

A remedy for Splents.

Take a stick (hassle, if you can, though the difference perhaps is only fancy) of about two fingers thickness, and beat and rub the splent with it gently, in order to soften it by degrees. Continue this course till the skin feels as if it were detached from the callosity; then, with the point of a lancet or fleam, prick it in several places, in order to let out the corrupted blood. This done, take a large stopple of tow, dipped in spirit of turpentine, and over it put a linen cloth, five or six times double; and over this, a piece of pig's or ox's bladder, and bind it with a linen swathe. Let the swathe be about the same breadth with what is used for a man's leg, but longer, that it may the better keep on the dressing; leave it there twenty-four hours, and then renew the dressing a second and third time. To what purpose, will some say, is all this great wrap? Is not a cord, or a common bandage, as well? What good can the pig's or ox's bladder do? We will inform you, the piece of bladder hinders the spirits from evaporating, and the linen pledget keeps the dressing on close, without hurting the nerve, which would be the case if you were to use a cord; the remedy would be worse than the disease.

of

Of splents, or fufees.

We here inform the reader, that splents and fufees are callosities made by a humour in the legs of a horfe, according to the description before given. Thefe two excrescences have the fame caufe, and yet are widely different; for splents no way incommode the horfe, unlefs they come too near the nerves, as before mentioned; but fufees, on the contrary, often lame him, being of a great length, and growing to the bone which goes to the joint of the knee, and as it were riveting it. A horfe that has them, therefore, may be called *lock-kneed*, and has, in effect, his legs fo stiff that he limps, and his knees cannot bend without violence. When a knee is once affected in this manner, it is very difficult to cure; at leaft unlefs you fire it, to prevent the fufee from going higher, and entirely depriving the knee of motion. As it is an affair of great concern, you ought not to neglect the operation of the fire whenever the fufee begins to reach the joint.

Another.

In the firft place shave off the hair very clofe, efpecially juft where the hardnefs is, then beat and rub it eafily with your flick, for if you do it too roughly, it will caufe an inflammation. The delicacy of the hand, therefore, is here the chief thing. When the humour is fufficiently foftened, prick it all over with the point of a lancet to let
out

out the corrupted blood ; then make an ointment of euphorbium, flowers of brimstone, cantharides, and black-hellebore, a drachm of each ; powder the whole, incorporate it with oil of bays, and make a liquid ointment, which apply to the swelling, spread on tow, fastening it on with a bandage, that it may keep there twenty-four hours.

Take great care that the horse may not come at it with his teeth ; when the twenty-four hours are expired, take off the dressing, and wash the wound with fresh water, continuing thus till it is well.

Another for the same purpose.

The hair being entirely shaved off the tumour, and the tumour softened by rubbing it with your piece of wood, and pricked with a lancet, as above described,

Take a piece of rind of bacon, with a good deal of fat on it, and apply it to the part ; then press a hot iron against the rind, which will make the fat melt, and afterwards apply butter and black pitch, melted together in an iron ladle ; continue to use the latter once a day for a fortnight, in which time the slough will fall off, and then you may dress the wound with any digestive.

Another.

Shave off the hair, and do as before to soften the splent ; then take five or six bits of tile, each
about

about the bigness of the splent, and make them red hot ; have ready an earthen pot, with wine-vinegar, and a strong piece of linen rag ; put one of the bits of the tile into the vinegar, and immediately take it out in the rag, and apply it to the splent, holding it there till cold ; use a second piece of tile in the same manner, and so on, till you find the adjacent hairs come easily off in your hand. Then apply the following caustic, which should extend no farther than the humour itself, and be left there, bound on, twenty-four hours :

A caustic.

Take a clove of garlic, the same weight of common salt, of pepper, and of black-hellebore, pound the whole together, and with almost an equal quantity of oil of bays, make an ointment, which apply to the splent or fufee, and bind it on, taking care that the horse may not get at it with his teeth. When the slough or eschar is come off, take care to wash the wound night and morning with warm wine, and a little sugar melted in it, till it is quite well.

Another remedy.

After having treated the swelling according to the former direction, to prepare it for the medicine take roots of wild turneps or rape, cut them into slices as thick as your finger, and put a good many of these slices into wine-vinegar, and give them

them a gentle boil, add a handful of falt, and let the composition stand over the fire while you take the slices out one by one, and apply them as hot as you can to the splent or fufee, till you perceive it come off, as in the foregoing recipe, then apply the ointment of pepper, falt, garlic, black-hellebore, and oil of bays, as before prescribed, and leave it on twenty-four hours; supple the eschar well afterwards with greasy things, and it will fall off and the hair come again.

Another.

After the preparatory treatment, take the finest head of garlic you can get, boil it in olive oil, and apply it as hot as you possibly can upon the tumour bind it on and leave it twenty-four hours, and afterwards add every day oil of bays, till the splent disappears, which it certainly will.

Of the three kinds of oslets.

Oslets are of the same nature as splents, which is the cause of some farriers mistaking them for the same thing; there is this difference, however, between them, that splents come near the knees, and oslets near the footlocks; their seat is indifferently within or without the leg.

The first is the simple oslet, which does not grow near the joint of the footlock or the nerve ; this need not hinder any one from buying a horse, because it puts him to no inconvenience, and is only disagreeable to the sight ; besides, it very often goes away of itself, without any remedy.

The second is that which descends into the footlock, and hinders the motion of that joint. This occasions a horse to stumble and fall, and, with a very little work, to become lame.

The third has its seat between the bone and the nerve, and sometimes upon the nerve ; it so much incommodes a horse, that he cannot stand firm, but limps on every little occasion. This distinction is much like that between the three sorts of splints, and as the same remedies will cure them both, we shall set down no other.

Windgalls of the three kinds.

Before you undertake the cure of any distemper, accident, or infirmity, that may happen to a horse, you ought thoroughly to know the nature of it. It is just the same with farriers as with physicians and surgeons ; those who succeed without knowing what they are about, must ascribe that success to mere chance, which might as well have run against them.

Windgalls, which we are now about to speak of, appear to the eye much like oslets, but are not, however,

however, just in the same places, nor do they feel like them, for whereas oslets are hard, but wind-galls give way to the touch.

Some horses are more liable to these than others, and that, for several reasons; some because they proceed from old worn-out fires; and others, because they were worked too young; among your delicate foreign horses, as Barbs, Spanish, Arabian, or Italian, when they are worked young, you will see ninety in an hundred loaded with wind-galls, from the age of five or six years. But in the countries where these come from, they seldom, without the utmost necessity, ride their horses till they are five or six years of age, especially in studs of reputation. English horses are very subject to windgalls, because they are all worked too soon; and sometimes, because they are descended from old decayed stallions.

The best race in England comes from Barbarian and Arabian horses, and these are certainly the finest creatures in the world for the saddle; if they are not spoiled when young.

A simple windgall.

A windgall is a little tumour between the skin and the flesh, round the fetlocks; when it appears at a good distance from the large nerve, it does not lame the horse, and if he has but age on his side, that is if under ten years old

at most, he will be as useful as before, provided the work you put him to be not of the most laborious kind. However, a horse is much better without than with even this sort, which is called a *simple windgall*; it consists of thin skins, full of red liquid, and soft to the touch. The remedies will come under the description of the third sort.

Nervous windgalls.

Nervous windgalls answer the same description, only as the simple ones come upon the footlocks, or a little above them on the leg-bone, in the very place of oslets, nervous ones come behind the footlocks, upon the great nerve, which makes them of worse consequence, for they never fail to lame a horse after much fatigue.

These windgalls may happen upon any of the legs, but some of them are more dangerous than others, in proportion as they press the nerve, and are capable of laming the horse. When a horse happens to limp with them on a journey, and you cannot possibly give him rest, be sure every time you put him up, to see his legs well washed with the coldest spring-water that can be come at, using a pail-full to each leg with a large sponge; this will enable your horse to continue his journey without limping, though it can never cure him. Take notice that windgalls are more troublesome

blesome in summer than in winter, especially in very hot weather, when the pores are all open.

Bloated windgalls.

The third and worst sort of windgalls are distinguished by this name, when they come over the hind part of the footlock, between the bone and the large nerve, and make the horse so lame at every little thing he does, that he can scarce set his foot upon the ground. They appear on both sides of the legs, without as well as within, and when you touch them with your hand or finger, they feel like a pig's or a cow's bladder full of wind.

Some have run the risque of opening them and letting out the red water that is within the skin, but not one of these have succeeded. They have now and then relieved the horse, indeed, for some time, but at other times they have lamed him effectually; the shortest way, therefore, is to have recourse to remedies which may be relied on for a cure, and cannot do any hurt.

Windgalls of this sort are more dangerous than is commonly thought, and if let alone too long, can never be otherwise cured than by the actual cautery, and as good farriers who know how to give the fire are very scarce (though they all pretend to this piece of skill) there is least hazard run by taking the disorder in time. The hair should be shaved

shaved off all round the feetlocks, and over the windgalls, and then make use of the following ointment :

Take Spanish-flies, euphorbium, and black-hellebore, of each two ounces, powder the whole, and make an ointment with the oil of bays and turpentine, in equal quantities ; spread this with a spatula all round the footlock, and especially upon the windgalls themselves ; leave it there twenty-four hours, before which time a great deal of the red water will be discharged ; then scrape off the old ointment with your spatula, and apply fresh, continuing to do so every twenty-four hours, for nine days running.

The skin will fall off in such a manner, that you will be apt to think at first it will never come again ; but you may depend upon seeing it grow after some time, and look as well at least as before. When windgalls are fresh they sometimes disappear, and are not seen again for a long while, unless through the same accident that first brought them, namely, too much labour.

A way to make windgalls disappear.

We should not speak of this method, if many dealers did not make use of it to deceive those they sell to, for when these windgalls cannot be cured, they may be so dispelled as to deceive a buyer. It is therefore proper to know how this

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is done. When a jockey lights on a handsome young horse, though perhaps all his four legs are spoiled, if he can but make those legs carry him to market, and recommend him for a horse of value, it is all a man of this profession cares for.

If the jockey buys him in the winter he never fails at the beginning of the spring to send him to graze; after some time he takes him up again into the stable, and with cow-dung diluted with vinegar, rubs his legs all over, three or four times a day, and in a short time the windgalls disappear. The jockey keeps this horse always still, in a separate stable, till he lights on a chapman, and then, while he is shewing him others, the defective beast is brought in sight, fresh and sprightly, just as he comes from watering. The chapman asks the price, the crafty jockey tells him the horse is not his, or that he has already partly sold him; but since he likes the creature so well, he will do all in his power that he shall have the refusal of him. This most commonly makes the customer more eager to buy, and in this manner the English jockies, more than others, get off their bad goods. But the most sure way to make a horse firm in his legs, and cure his windgalls, is to give him the fire, in the manner represented in one of the subsequent Sections, or as follows :

How

How to give a horse the fire.

Care must be taken, in the first place, that the person who gives it has a light and delicate hand, which a farrier, who works at the hammer, cannot possibly have; he must also have a good sight, and be perfectly acquainted with the operation; for if he bears so hard on his iron as to go quite through the skin, he runs a risque of laming the horse, and if he does not give the fire enough, the windgalls will remain, and he might as well have done nothing. Let us suppose then that we have a capable man, he must have six or seven steel knives, let him heat them over a charcoal fire, and not in the forge, because the intense heat occasioned by the bellows, will scale the instrument, and make the edge like a saw, so that it must tear the skin; make it very hot, that it may pass delicately over the skin, and feel in hand as if one was cutting of butter; when one knife begins to cool, a person that stands by for that purpose, must give another quite hot; and put the first again into the fire. Never go twice successively upon the same line, and observe to take your strokes downwards, not upwards, beginning in the middle and then making parallels on each side; continue thus till you have gone several times over each line; the first knife will scarce be enough without changing to mark all the lines out; when the fire is given sufficiently, the bottoms of the streaks appear red, or of a gold colour, and certain little drops of water

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ter begin to rise. This is a signal for leaving off the operations for fear of cutting through the skin. The middle line should not be so often gone over as the rest.

The fire being given on both sides of each leg, within and without, cover all the footlock, and a part of the nerve, as well as five lines on the side of the nerve, and three on each side of the footlock, making together nine on each side the leg, in all eighteen. Then take a small sponge, dipped in writing-ink, and draw it over all the lines. You must do this as soon as you can after the fire is given, and continue the use of ink in the same manner, nine days following. After that, anoint all the lines or streaks with ointment as the eschars fall off, and take care during the whole time of cure, that the horse never comes at his legs with his teeth.

There are two things to be noted, which are of great importance; the first is, that the horse must have rested a long time before you give him the fire, that he may not be lame at the time of the operation, which would render your labour ineffectual. The second, that only autumn and winter are proper seasons for this operation, to which the great heats and the flies may be of very bad consequence.

We advise no man to give the fire to a horse of little value, because the expence of it is more than an indifferent horse is worth; for after you have

performed the operation, there is a necessity for his resting two or three months without stirring out of the stable, after which he may be lead early in the fields and meadows, especially if in the month of May, among the green corn, or long grass, that his legs may be fortified by being thus suppled with the dew. If all this be well executed, we may be sure at the end of six or seven months, that the horse will have better legs than ever, and will last many years longer. We have horses of great value, without any defect, on whom this operation has been performed by way of precaution, and who have afterwards been fifteen or twenty years fit for service, with their legs always firm and sound. Mr. Merrick, farrier to the late King, has done it even to horses for his Majesty's own riding, and with very good success. We have followed the same practice ever since, and never found it fail.

In order to give the fire properly, the horse should be laid down, and the pot of charcoal should stand just by, that the irons may have no time to cool when taken out. It is proper, also, to have a smooth piece of board at hand, to draw the instruments over, and disengage any filth that may stick to them. The dressing to be used after the ninth day, is the following excellent ointment for burns, equally good for man and beast.

An

An ointment for burns.

Take a pound of the freshest hen-dung you can get, and mix it with a pound of sage, chopped and bruised; then take two pounds of melted lard, and put all together in a large earthen pot; cover the pot close, set it over a clear fire, and let it boil four or five hours; strain it as hot as you can through a coarse towel, and squeeze out as much as possible. Keep this ointment in your house, as a valuable treasure, for it will cure all manner of burns, without leaving the least mark behind.

The way to use this ointment upon horses who have had the fire given them, is gently to anoint every line with it once a day, upon the end of a feather. For any person who receives a burn, let some of it be imbibed in soft paper, and so laid on fresh twice a day, if it be a part you can cover. But for the face, use a fine feather, and apply it five or six times a day. This will certainly make a perfect cure within a fortnight.

Malanders.

To know what the malanders are, you must examine the feet of a horse, loaded with hair, for such horses are more subject to it than others. You will find a sort of little slit in the bend of the leg, behind the knee, from which a certain humour issues, that is sometimes whitish, and some

times like muddy water. The hair round it is straight, and stands, as it were, on end; and as the humour is sharp and salt, it makes the hair fall off by degrees. This disease happens often to fat horses, and those that were bred in countries where the grass is luscious. It is none of the most considerable defects, but worse in some horses than others, in proportion to their constitutions.

Jockeys and dealers say that it makes a horse so much the better, because nature thus discharges what offends her; and sometimes we confess it is but a trifling matter; but still a horse had better not be subject to it, because some are so loaded with humours, that they descend into the feet, while you are curing the malanders, and often cause what is called a *fig* in the foot, which is much more dangerous than the malanders, and what few farriers know how to cure, for want of experience.

Whatever jockeys may pretend, the malanders make the leg stiff, and take away the motion of the knee-joint, which obliges a horse to stumble often, and sometimes to fall, as he cannot bend his joints without pain; but in summer, this defect sometimes goes away voluntarily, the humours being dried up by the dust, but then the mark of it remains. In winter, when a horse is obliged to work in mud, water, snow, or ice, he suffers many
incon-

inconveniencies, which make it necessary to use gentle remedies, lest by curing the distemper in one part, you drive it to another. The following are very proper for this purpose ;

A remedy for malanders.

Take calcined oyster-shells, levigated ; the same weight of wild turneps, and pound them also ; then take hogs-lard, the weight of both, and put all together in an earthen pot, and let it boil over the fire a full hour, stirring it all the while, till it is cold ; when taken off, anoint the malanders with this ointment two or three times a day, and it will effect a cure. But you must purge the horse before you use it, as well as afterwards, to cleanse his body,

Another remedy for the malanders, mules, and salanders.

These three distempers, though different, may be treated and cured with the same remedies.

It has been already said, that the seat of the malanders is behind the knee, in the joints. We add, that the salanders come over against the malanders, in the middle of the bend of the hough ; and that mules are a kind of clefts, that come behind the footlocks, which split them quite across. This last accident is often a matter of importance, if it be not remedied very soon ; for this slit will grow so deep, that it sometimes extends to the bone, and the tendons that hold the bones together,

gether, and sometimes a filander comes in the middle of the wound, looking white, like the small end of a nerve, but which is neither more nor less than an excrescence, occasioned by the humours that ooze from between the bones of the joint. This often destroys a horse, but the best way to save him, is to use these remedies; take oil of hemp-seed, honey, hogs-lard, verdegris finely powdered, black pitch, flour of brimstone, white copperas, red arsenick, and common alum, of each two ounces; quicksilver one ounce; mix the flour of brimstone and quicksilver, by rubbing in a mortar till the quicksilver is killed, and then mix the other things in powder, with the oil over a slow fire, in an earthen pipkin (avoiding the fumes) and boil it a little, and then stir it till it is cold.

Dress the horse every day with this composition, till he is well.

Another remedy for the malanders, or salanders.

Take black-sope, ointment of poplar-buds, and fresh butter, of each equal parts, mixed together for an ointment.

Another.

Take oil of lead and white cerufs, of each eight ounces; common honey twenty-four ounces; put the whole into a large earthen pipkin, and let it stand over a gentle fire, stirring it perpetually

tually with a spatula, to prevent its boiling over, and continuing to do the same when you take it off, till it is quite cold. Use this as the preceding. Every time that you dress your horse, foment the wounds well with a little warm wine and sugar, which will keep them clean; but be as quick as you can in doing this, that the air may not have time to affect the part, because that would retard the cure.

Bow-legs.

This accident proceeds from different causes; first, from nature, when a horse was got by an old worn-out stallion; secondly, from his having been worked too young. Neither in the one case nor the other is the horse of any value, because he never can be sure-footed; it is also a disagreeable sight, and is known by looking at the two fore-legs, standing about three paces from his shoulders. If the knees point forwards, and his legs turn in under him, so that the knees come much farther out than the feet, this is what we call a bow-legged horse. Such a horse ought to be rejected for any service whatever, as he never can stand firm on his legs; and how handsome he may otherwise be, he should on no account be used for a stallion, because all his progeny will have the same deformity.

We should have taken no notice of this case, because there is no cure for it, had it not been to prevent

prevent any person being deceived in making a purchase.

Tottering legs.

This infirmity, like the other, is not very easily discovered, which is often a great advantage to the seller; you cannot perceive it till after a horse has galloped for some time, and then by letting him rest a little, you will see his legs tremble under him, which is the disorder we mean. How handsome soever the legs of such a horse may be, he never can stand well on them. You are not to mind therefore what a jockey says, when he talks a great deal of the beauty of those limbs, for if you oblige him to gallop his horse, or fatigue him pretty much (which is commonly done, in order to try the creature's bottom) you will, in all probability discover this defect, unless you suffer the groom to gallop him to the stable door and put him up in a moment, which he will certainly do, if he is conscious of it, while the master has another horse ready to shew you, in order to take off your attention from what he is afraid you should see. There is no more cure for this, than for bow-legs.

A horse that forges.

What we mean by a horse that forges, is one that when he walks or trots strikes the toe of his hind

hind feet against the corners of his shoes before, which occasions a clattering noise as you ride ; this proceeds only from the weakness of his fore-legs, he not having strength in them to raise them up quick to make way for the hind ones. A horse of this kind can do no great service, and the dealers, to get rid of him, will make abundance of pretences ; if he has been just shod, they will scold the hostler for having suffered him to have such long shoes, and if his shoes are old they will tell you he is just arrived from a long journey, and very much fatigued ; you must not be over credulous, therefore, to any thing a jockey affirms ; for all they say is usually with an intent to deceive ; and it is very certain, that a horse who forges can never be sure-footed, any more than one who has tottering or bow-legs.

A blow on the nerve.

This accident may happen to the best horse in the world as well as to the worst, if the person who rides him does not know how to manage and support him justly. In hunting, especially, or in swift courses, when you are obliged to ride over sandy or ploughed grounds, or such as are wet and boggy, if you are not careful to support him with your hand, his fore-feet will sink in, and as he has not time to raise them soon enough to make way for the hind ones, the toes of these come against

the large nerves before, that lie between the knee and the back of the footlock, and strike them with great violence; but as the blow does not break the skin, nothing at first appears, only in the evening or the next day the horse grows lame, without your knowing the cause of it; you must examine him, therefore, all over, drawing your hand first from the joint of the knees downwards, and taking up the nerve with your fingers in order to feel it all the way; if he suddenly snatches away his foot, imagine you have found the seat of his disorder, and that it is the shoe, or blow on the nerve; if you discover it soon, proceed as follows:

Take spirit of turpentine and wine vinegar, an equal quantity of each; beat them together, then take a large piece of sponge, slit it almost through the middle, and having dipped it in the composition, apply it to the nerve, covering it quite from top to bottom; then take an ox or cow's bladder, and bind it over the sponge with a linen swathe; let this remain twenty-four hours, and then repeat the same dressing three times, on the three subsequent days, taking care never to bind the nerve too hard; this will quite remove the otherwise dangerous malady.

Another

Another remedy.

You must shave off all the hair along the nerve, and then rub it well with a wisp of straw, in order to heat it, and apply some of the following ointment:

Take black-hellebore, euphorbium, and Spanish-flies, of each two ounces; oil of bays, four ounces; powder the dry drugs, and mix them with the oil for an ointment, which apply to the whole nerve, but most plentifully where the hurt was received; repeat the same dressing twice in one day, which will draw out a red humour, and then continue to use it once a day, near a week longer, by which time the nerve will look red, as if it was raw; you must not be surprised at this, because both skin and hair will come again as before. If this ointment be well applied, and the horse left three weeks or a month in the stable, without stirring, his leg will look as handsome as ever.

This ointment is also good for worn-out or surbated legs, the nerves of which are hard and swelled; but if these disorders are of long standing, and the nerves are entirely spoiled, the shortest way is, to give the fire; making six lines on each side of the nerve, three on each side of the part that furrounds the footlock, and one on the middle, making ten lines on each side; this is the

only certain remedy, if the fire be well given, for wounded or worn-out nerves. But we are to inform you, that always before you give the fire to a horse, you must let him rest three weeks or a month in the stable, and during that time, you must prepare the leg with good fomentations of marsh-mallows, for the operation; three or four days before you perform it, cleanse the leg from all filth with water and sope, for though the fomentation supples the nerves, they always leave a dirt behind them. As many persons will not consent to give the fire for fear of disfiguring their horse, and because all who pretend to it are not capable of this operation, the reader may find here a great number of remedies which we have tried, in order to avoid performing it :

A remedy for the nerves.

Rub your horse's legs all over with your hand, in order to warm his nerves; then bleed him in the bow-vein, and rub his legs again with his own blood; afterwards use the following composition:

Take black-pitch, black-rofin, Burgundy-pitch, Venice-turpentine, oil of bays, bean-flour, rose-leaves, camomile-flowers, cypress-nuts, dragons-blood powdered, of each two ounces; boil the whole a quarter of an hour over a gentle fire, in three quarts of wine, and with this rub the nerves
twice

twice a day for fifteen or twenty days following, in which time you will see them perfectly cured.

Another.

Take oil of bays, common honey, turpentine, bole-armenic, black-sope, matton-suet, of each two ounces; put the whole into a pipkin, and boil it a quarter of an hour over a gentle fire, stirring it all the while; apply this to the nerves moderately warm, with tow and a proper bandage, and repeat it till the swelling goes down; then to perfect the cure have recourse to the following fomentation:

Take rose-leaves, camomile-flowers, green anise, green sage, pomegranate-bark, wormwood, and gall-nuts, of each two ounces; roch-alum and white-vitriol, of each one ounce; reduce the whole to a powder, and put it into a kettle, with about a pail-full of rain or river-water, which boil to half the quantity; then with a sponge bathe the nerves and legs of the horse twice a day, till he is perfectly and manifestly well.

A remedy for swelled legs.

There often happens a sort of swelling in the legs of hunters by a thorn that runs into them in the chase; this swelling usually appears after the fall of the leaf; when you feel with your hand that
the

the nerves are swelled, and that the swelling is occasioned by a thorn, make use of the following remedies :

Take an equal quantity of white-wine and oil of olives, and boil them over a gentle fire in a pipkin, till they are reduced to half; rub the swelled legs with this against the hair twice a day the whole length of the nerves. The hair of the leg will all come off, but it will grow again, and the leg be as sound and as handsome as if it had never been disordered. The horse during the course should have a whole month's rest,

Another.

Take oil of olives and leys of red-wine, of each alike, mix and beat them well together to reduce them into an unctuous substance, with which rub the horse's legs night and morning.

A remedy for a horse that has got thorns in hunting.

Take the skin of an adder and apply it upon the place where there appears to be a thorn, and at the end of three or four days the thorn will come out without any other remedy. But if thorns have been long in the legs of a horse, and are got in far, after the application of the adder's skin, use the following ointment :

Take goose-grease one pound, Burgundy pitch, gum elemi, of each six ounces; yellow wax, four ounces; white sage-leaves one handful; boil the whole

whole together till it comes to an ointment, with which rub the swelled legs; then heat an iron bar red hot, and hold it to the leg all round, to make the ointment penetrate, but not too near as the farriers commonly do, because that contracts the nerves and makes the remedy worse than the disease. You need apply this ointment but once in two days; and, if the application is made with judgment, it will produce wonderful effects.

Another.

Take mallow roots, well pounded, and steep them eight days in a pail of water, then add two pounds of flour of linseed, and boil the whole together over a gentle fire, till it becomes like a hasty-pudding; strain it warm through a coarse towel, and squeeze out all you can; then add a pound of oil of olives, and keep it stirring till quite cold, and of the consistence of an ointment; keep this in a pot close covered, and rub the legs with it once a day, till they are cured, which will be very soon.

Another remedy for the malanders and salanders.

Take comfrey-root, and lead-ore, of each four ounces, honey half a pound; put them together in a varnished pipkin, and melt them over a gentle fire, stirring all the while, and continuing to do so when the composition is taken off till it is quite cold. Put some of this once a day upon
the

the malanders or falanders, but take care to cleanse the wounds before you apply it; there is no bandage wanting, only put it on with your finger or a spatula.

A blow between the footlock and the heel.

These blows are received in the same manner as those on the nerve before described; the only difference is, that the seat of the one is higher than that of the other. The seat of the blow we are now speaking of is between the footlock and the heel of the fore foot. As this is a very sensible part, such accidents are often dangerous. The nerves which contribute to the motion of the joint run along just in this place; that is, there are a great number of small vessels, veins, and arteries, which upon every rude knock they receive may lame a horse.

To know when a horse is hurt here, draw your hand along the large nerve, pinching it as you proceed; if you find no sensibility there, carry your hand to the joint that is between the footlock and the heel, and if you have then hit upon the part, the horse will catch away his foot. Having found what ails him, begin the cure with the same remedies that are prescribed for a blow on the nerve when there is no wound. If the blow be upon the heel itself, and the skin a little broke, you have only to wash the part with warm wine, and a small matter of sugar melted in it,
putting

putting over it a little tow and a bandage. On the deficiency of wine and sugar wash the wound with urine, for with ever so little dressing, if you keep the air from it, it will heal; spirit of turpentine will do very well in this case; or, if you are in the country, the juice of the herbs arse-smart, celandine, or nettles, either of the three; if you can get none of these take only a little cannon powder, fill the wound with it, repeating this three or four times, till all the inside of the wound is burnt as if you had made it with a hot iron, and then dress it with urine, tow, and a bandage. If the sore through neglect is suffered to grow very bad, you must dress it with a digestive made in the following manner:

A digestive.

Take four ounces of Venice turpentine, and two yolks of eggs, rub them together in a mortar very well, and put a spoonful or less of brandy, and mix the whole for an ointment. If there be proud flesh, strew it over with burnt alum, or rub it with blue vitriol, or lapis infernalis, or use any one of the compositions mentioned in this book for that purpose.

Some disorders to which we give other names are occasioned by these blows, and, among others, what the French call *javarts*, that is, swellings in the pastern, are often owing to it, though they

sometimes proceed from natural causes, we shall speak of the three sorts of these in their order.

A simple javart, or core in the pastern.

As nothing should be undertaken in medicine before the consequence of it is known, we shall first give the idea of a javart: it is a humour that comes behind the footlock above the heel, and obliges a horse to limp extremely; there appears from the first a small swelling which is very sensible to the touch, and the sooner you can bring it to suppuration the better, in order to discharge the foul matter; for no sooner is he rid of that, but the horse finds himself relieved; whereas if it continues there long, he runs a great risk of his life; instead of simple it then becomes a nervous javart, which is no easy thing to cure. But we proceed to the simple sort, which may be cured by the following remedies:

A remedy for a simple javart.

Take the same drugs that are used to bring the glands to suppuration in a horse that has the strangles, or in the room of them lily roots roasted in wood embers, put them in a mortar with such oil as you can get (rape or linseed oil are the best) and reduce the whole to an ointment, which apply upon the javart; it will soon draw out the matter and then heal it like another wound.

Another

Another way of curing it.

Before you undertake to cure a javart you must carefully examine the constitution and temperament of your horse; if he is over-charged with humours, you must purge him for some time, to turn them from that part.

Plaster to draw the matter from a javart.

Take four ounces of hogs-lard and melt it in an iron ladle, then take four ounces of honey and boil it up suddenly, and add two ounces of bean flour, and set the whole over the fire, stirring it till it comes to a pappy consistence; add afterwards the yolks of three eggs, and when the whole is well incorporated together, spread it upon tow and apply it to the tumours; renew this dressing every twelve hours till the matter is discharged; then put a tent of tow with a good suppurative into the hole, to draw out all that remains; when nothing more comes, put a little powdered alum round your tent to keep down the proud flesh; after which you may dress it with any thing proper for healing of wounds, but take great care to keep the air from it as much as possible.

Horny javarts.

Though all these swellings proceed from much the same causes, there may be this difference ob-

served between them: the simple javart comes only in the joint between the heels and the hind part of the footlock; the horny sort comes nearly in the same place, but the hole forms itself between the heel and the horny crown of the foot. Many horses have been lost by this accident, either through negligence, or through leaving the wound too long exposed to the air in dressing, or through the omission of their necessary scourgings. The best remedies at such times are found ineffectual, and even horses that have not died of it have been six months or sometimes a year under cure. To prevent these accidents, take leeks, heads and greens together, chop them to pieces and beat them up in a mortar with mustard and hogs-lard, the same quantity of each as of the leeks, make a cataplasm and apply it to the javart, in order to bring it to a head and draw out the matter; then heal the wound with drying powders, taking great care to keep out the air.

If the javart be of long standing, take spirit of turpentine and Succotrine aloes in powder, of each equal parts, mix with them as much loaf-sugar as will make a tincture, to dress the wound with till it is well. If the horse has had it six months or a year, and proud flesh grows over the horn, you must cut off as much of it as possible with an incision knife, and then give the fire to the part, making lines from top to bottom over all the

the swelling, from the hair quite to the horn; this will search the wound and fetch down the proud flesh which you could not cut off. It is indeed the only way to do it, and will succeed when all the drugs of an apothecary's shop are found insufficient.

The operation of the bistory and the fire being over, apply to the wound a plaster made in the following manner, and continue to renew it for ten or twelve subsequent days:

Take honey and Venice turpentine an equal quantity of each, beat them well together, and apply this composition to the wound, leaving it there under a good bandage three whole days, then repeat the dressing, and continue it with bandage each time as long. If you perceive any proud flesh to arise, sprinkle on it a little burnt alum, and dress it with the same plaster, only adding a small quantity of Venice turpentine; you must always keep the hoof greased with hogs-lard to preserve the crown from contracting, and if, through the length of the distemper, the crown should be strained or diminished, make lines upon it with your fire-knives all round, drawing them from top to bottom. If the contraction be extreme, without hesitation take out the sole of that foot, and split his frog to enlarge his foot; you need make the dressings of turpentine and grease a little warm, nourishing the hoof well with oil or hogs-lard.

Another

Another remedy.

Take hogs-lard, and a quarter of the same weight of fine basket salt, mix them together and leave them on the fire twenty-four hours; repeat the same till the matter is discharged, and then any ointment will effect a cure.

How to know a nervous javart.

This comes just in the middle of the joint between the heel and the back of the footlock. If it be taken in hand at the first the cure is easy, but if you wait till an ulcer is formed, a small filander will at the same time grow to the nerve, and be very difficult to cure: the reason is, because you must not use violent remedies for fear of hurting the nerve, and medicines that are soft only nourish the filander; after the common applications therefore for other javarts, you may have recourse to good digestives, and instead of brandy use spirit of turpentine, mixing with it powder of calcined alum, more or less, as the occasion requires; when the filander disappears, complete the cure with digestives only.

For a prick in a horse's foot.

This disorder is easily enough to be known, and therefore requires no description. If the hurt be fresh received, make the hole as large as you can in pulling out the nail, and dress it with
spirit

spirit of turpentine covered with tow. If the horse is still lame at the end of twenty-four hours, repeat the same dressing, and so continue to renew it daily, till he is well; for want of spirit of turpentine, you may use the balsam traumaticum, or oil of vitriol.

For an old prick you may make a tincture of Succotrine aloes in this manner:

Take Succotrine aloes, fine sugar, of each half an ounce; oil of turpentine three ounces; mix them well and apply it. If there is a filander at the bottom of the hole, which you cannot get off, put upon it a little powdered sublimate, and the tincture over that; observe always to put a good defenstive round the crown, for fear the inflammation should throw any matter upon it, which might sever the foot from the hoof, and consequently would spoil the horse. Nothing should be more regarded than this, nor than keeping the hoof always supple, as before described.

Another remedy for an old prick.

Steep Roman vitriol in brandy till you make it quite blue, and put this once a day upon the hole till it is well; this liquor will keep a long time, and is good for all wounds where there is any foulness.

A halter

A halter-cast.

What we call a halter-cast is when a horse entangles his leg or his pastern, either behind or before, in the rein of his halter. This accident is usually most violent when it happens to a hind leg; the horse, thus hampered, flings about, and cuts himself in the joint between the pastern and the footlock.

If the wound is recent, how great soever it may be, provided no nerve be cut that is essential to the motion of the joint, nor any vein, the danger is but trifling, and a cure may be effected by only raw yolks of eggs, fastened on with a bandage, and renewed every twenty-four hours. In lighter cases you need only apply the egg with your finger, night and morning; but if the nerves or veins have been damaged, there must be a good digestive to heal them, and great care to keep out all air. The same digestive, or even some of the remedies prescribed for javarts, after they are opened, may serve.

Scratches or chaps.

Horses are more subject to this disorder in winter than in summer, because their skins are then more tender, and they are obliged to work in water, ice, and mud half frozen, which often makes the skin break behind the joint, sometimes upon the pastern, sometimes higher, and now

and



and then upon the footlock; it is not a very dangerous case in itself, but exceedingly troublesome upon a journey: however, if you can keep your horse close in the stable, and preserve the scratches from air, you may soon cure him with any assuaging remedy whatever. It is quite otherwise with the following accident, which demands much more attention, and that you should have recourse to many remedies set down in the article of *javarts*.

Mules.

Mules, or transverse mules, very much resemble scratches, being clefts athwart the skin behind the footlock; they happen oftener in the hind legs than in the fore, and are known from scratches, by a kind of whitish matter, somewhat like muddy water, that issues out of them; the same may indeed be found sometimes in scratches, but then they never go deeper than the skin; whereas mules are much deeper, for if you take a straw and probe one of them, you will find it go in above two fingers' thickness without forcing the orifice, entering between the bones and the joint. While this wound is under cure, the horse must never go out of the stable, nor even to the farriers to be dressed, because the joint suffers much in walking, and the cleft grows larger, which takes away the effect of the best remedies. Use the same remedies here as in swellings of the pasterns or *javarts*, and especially the tincture of aloes and spirits of turpentine

tine; and be sure to put over the tincture a good defensive, to prevent any inflammation that might otherwise come, and to fasten it with a bandage five or six times double, to hinder any motion of the footlock. You may complete the cure with a digestive.

Maltlongs or Maltworms.

This is most commonly a humour inherent in the horse's nature, and its seat is on the fore part of the foot above the crown; that is, under the front of the footlock; it appears in a sort of itching scab, about an inch in diameter, which makes the hair come off the part, and the matter that comes from it is very stinking, and troublesome to the horse. Many speak of it as a trifle, but few know how to cure it. There is, indeed, occasion to have recourse here to a caustic, in order to fetch off the scabby excrescence, which is in fact a kind of proud-flesh, not easily eradicated; neither the incision knife nor any other sharp instrument is half so effectual to this end, as the caustic prescribed in the present Treatise.

Having got off a scab about as big as half a nut, if no more proud-flesh appears, you may dress it like a common wound.

This disease seldom happens to saddle-horses, but to large draught cattle that are loaded with hair, and consequently full of humours, unless any saddle-horse was brought up or is fed on fat
marsh

marshy ground. If the maltlong be neglected, it causes another and worse accident, which is what we call a *cloven* or *ox's-foot*; the matter running down from the maltlong, between the foot and the horn, occasions the hoof to cleave in the middle, upon the fore part.

Description of the Maltlong.

This distemper comes, as we have said, upon the coronet of a horse's foot, that works in mud; it often disunites the horn from the foot, and sometimes makes the hoof fall off; this disease appears more in some seasons than in others, for it breaks out afresh when the wheat begins to sprout and is in flower; at all other times, you see only a little scab, as we before called it, which gives the horse no trouble. Dealers and jockeys take the favourable seasons to sell off their horses that have it, and only tell their chapman, that it is a blow, which the horse gave himself by accident, and that it is merely owing to the negligence of the farrier, or hostler, that it is not yet well. The deception, however, appears when the fatal season comes again.

A remedy for the Maltlong.

If the foregoing remedy, though very good, did not succeed, give the fire in the following manner: You must have the same sort of knives that were before described in the article of windgalls, and having heated them, cut the maltlong through in

the middle, descending toward the hoof, and make two other parallel lines, one on each side; then apply the following composition :

Take turpentine, honey, black-rofin, of each two ounces; roch-alum powdered, one ounce; mix the whole together, and melt them in a pipkin to an ointment, with which dress the wound immediately, and repeat the dressing every twenty-four hours for eight or ten successive days; every time you dress it, have ready a little warm wine, with sugar melted in it, for a fomentation, and when the wound is ready to heal, burn an old shoe or two, and mix the ashes with brandy to bathe and dry it, or you must dry it up with calcined alum, or a little digestive ointment, till the skin and hair come again as before.

Of a cloven or ox's-foot.

When a horse has his feet cleft in two from the crown down to the toe, it is very difficult to join the two parts again; this is therefore a very bad case; the best way to proceed, is first to cover all the horn of the foot with any greasy ointment, and fill the inside of the hoof with the same, in order to soften the horn; you must repeat it three or four days running; then take a cobbler's awl, about the size of a stocking-needle, and heat it in a charcoal fire, which you must have standing by you; pierce both sides of the horn very tenderly

in three or four places, so that the holes may meet exactly, which must be a work of time, because an awl will not long keep hot; then put a brass wire through each pair of holes, and twist the ends together tight with pincers, in order to close up the cleft as much as possible; you must then have three or four pieces of iron, made in the form of the letter S, and fasten them on hot, between the ligatures of the brass wire, which will keep the hoof firm and close; three or four weeks will make the horn hold together, but the horse ought to be kept three or four months before you work him.

Mules are very subject to this accident, but with this difference from horses, that though the cleft appears the same, it is not so deep, and does not hinder them from working; we do not, however, advise any one to buy mules that have it, because in process of time their feet may open quite to the quick, and a mule as well as a horse may lose his life by it if not well treated.

Of a seam.

What the French call a *seam*, proceeds from different causes, as first, from the extreme dryness of the foot, when there has not been care taken to keep the hoof greased and nourished with a proper ointment, and sometimes, with cow-dung and grease. It happens chiefly to horses that go
little

little abroad, and are taken out in summer in extreme dry weather; you should always refresh the feet therefore on such an occasion. It may proceed secondly, from a disorder within the foot on the side of the frog, and which, as it could not make any other way, cleaves the horn within or without near the heel, proceeding from the crown to the very bottom; when the foot is divided thus on the side as in the ox's-foot, it is in the middle, there often comes out blood as the horse walks or trots. Different persons treat this distemper in different manners, but though we shall introduce several remedies; yet we prefer that of giving the fire; as in the preceding article of cloven feet, with this difference only, that there is no need here of the brass wire, the iron S being sufficient to close up this cleft. If the operation be well performed, and the foot afterwards well anointed with hogs-lard, the disorder will never return, and the horn will grow stronger and harder in those places than ever it was before. You are first to prepare the hoof for two or three days with some greasy ointment, and then to apply three or four hot S's across the cleft, one under another; if you can then excuse your horse a month or six weeks from working, you will soon see him perfectly well, and in no danger of the same accident for the future; but, if you are obliged to work such a horse within a fortnight after you have given him the fire, you must have the

the corner of the shoe cut off on that side where the disorder was, so that that quarter of the heel may not bear upon any thing, because otherwise the cleft might open again, and all you have done be to no purpose; the shoe to be used in this case, and that wants one of its branches, is called by some a *half-spectacle*, and by others a *half-slipper*.

A quarter-seam.

The seam, as has been said, comes on the fore but never on the hind feet; it often makes a new quarter, and then we call it a *quarter-seam*. It proceeds from the alteration and dryness of the hoof, and is known only by the horse's limping, and having his hoof cleft from the top of the crown to the very bottom, either on the out or the inside; it causes very great pain, and often happens to horses of the manage, who never go in the wet, as well as to those who are confined long in the stable; the hoofs of all these therefore should be often supplied with greasy ointments, and the inside filled from time to time with clay or cow-dung.

A remedy.

Dip a pledget of cotton in spirit of wine, and lay it along the cleft of the seam, then put over it the following plaster, made of new wax and ointment of poplar-buds, the same quantity of each

each melted together. The spirit will unite the horn, and the plaster will take away the inflammation. Put on a fresh plaster every twenty-four hours, and the seam will soon heal and the horse be well enough to work.

Another.

Take two large adders, throw away their heads and their tails because they are poisonous, then cut them in slices, and put them into an earthen-pot, with a pound of oil of olives; close up the pot well, and put it into a kettle-full of water, but so as not any may get into the pot; boil it till what is in the pot is reduced to an unctious consistence, and use this ointment every day upon the seam till it is well, which will not be very long.

Another.

Cleanse the seam well by washing it with warm water, and afterwards with brandy, sprinkle upon it orpiment in powder, and over that the yelk of an egg boiled hard; then bind up the foot and keep it two days without opening; you will scarce be able to see, at the end of that time, that there was any seam. These are excellent good remedies when you want to sell a horse; but if you would keep him, the surest way is to give the fire.

Of

Of the bleyne.

To know when there is a bleyne, you must unshoe the disordered horse, and pare his foot very neatly. Upon one of the inner quarters, near the frog, you will see a red spot like corrupted blood, which will sometimes bleed with the very paring; this is a sign that the bleyne is very violent, and let such a horse work ever so little, especially if it be in summer, he becomes lame; but keep him some time idle in the stable, and he will not limp, unless he has been newly shod. Few old horses are subject to this accident; nor is the case very dangerous when visible, as here described; but when it is so forward that you can hardly see it, and has no room outwardly, you must divide the side of the hoof, agreeable to what was before said. Many farriers pretend to cure a bleyne by paring the hoof, and digging it down with their buttress, applying afterwards certain remedies to prevent an inflammation that may ensue. We own that a horse after this ceremony may seem to be relieved for the present, but when he has continued sometime without being shod, he begins to limp again, and let him work ever so little, the bleyne will be as bad as before. There have been people so ignorant as to unsole a horse in this case, without operating on the seat of the bleyne, but in such a horse too the bleyne soon

grows as violent as ever; whereas the following remedy is infallible and will make a perfect cure.

A remedy for the bleyne.

Take cow-dung, pork-fat, turpentine, and rosin, of each half a pound, a quarter of a pound of linseed, and half a pint of oil of any sort you can get; melt the whole together in a pot, and apply some of this composition as warm as the horse can bear it to his foot, binding it on with tow and splinters; repeat this every twenty-four hours, till the horse limps no longer, which probably may be twelve days or a fortnight; you will then never see any more of the bleyne.

Another.

When you have pared the horse's foot as deep as you can, especially just in the feat of the bleyne, melt sealing-wax upon it three or four days running, applying after each time some of the above composition. The latter, but not the wax, must be continued till the horse limps no longer.

This method is equally good with the former, and either of them will sometimes do when the other fails. The more lame a horse is after this operation; the more certain you may be that this disorder will never return. If they both fail for want of skill or experience in him that uses them,
the

the shortest way is, to unsole the horse and dress the bleyne according to the preceding directions.

How to unsole a horse for a bleyne or any other accident.

Before you attempt to unsole a horse, you must prepare his foot well by softening his hoof with an ointment of hogs-lard and cow-dung; then, in order for the operation, take a cord about half as thick as one's little finger, and make a ligature about the joint between the foot and the foot-lock, to keep back the blood, that you may see the sole the better; then cut the sole all round with your buttress, and when it is quick detached, you may take it off with ease. This being done, untie the cord, and let the blood run about a quarter of an hour, after which take up the foot and renew the ligature; put the shoe on as before, fastening it well with five or six nails, and then wash the inside of the foot with salt and vinegar, or salt and brandy, or for want of either, with fresh human urine, apply afterwards honey and rosin, an equal quantity of each, melted together, with a small piece of lime, filling the foot with tow bound on with splinters, to keep down the sole; but take care you do not hurt it by binding them too tight. You must put also a defensive round the crown, for fear the humours should fly thither; you may make it as follows:

A defensative to be used when a horse's soles are drawn.

Chimney wood-foot, two pounds ; turpentine, pitch, and honey, each half a pound ; melt the whole together in a pot, and then add about a quart of vinegar, in which the yolks of six eggs have been beat up ; apply some of this composition upon tow every twenty-four hours, continuing it for eight or ten days, and after that you need only dress the sole with turpentine and tow till it is hard and firm, which will be in twenty or twenty-five days ; be careful, when you leave off the defensative, to keep the hoof well supplied with some greasy ointment, that the horn may never be dry till the cure is effected.

As there are other accidents besides bleymes that may make a horse lame, and do him a great deal of damage, especially if he be fat and full of humours (though nothing perhaps may appear, on account of the fine make of the body and legs) we proceed to give such prescriptions as may be of general utility.

New frogs or frushes.

It often happens that a horse full of humours has a new frog, which many people call a *corrupted frog*, because in changing the horn that encompasses it, it corrupts in such a manner as to ooze out a stinking moisture, and by degrees it all rots away. If a horse is not bled in proportion to the

the humours that affect him, there comes another great disorder, and out of a hundred farriers, scarce six can be found that know how to cure it; this is called *a thread*, and by the French *crapeau*, and may be known and cured by the following direction :

A remedy for drying off corrupted frogs.

Take roch-alum, green and white-copperas, and verdegris, all finely powdered, of each two ounces ; infuse them cold twenty-four hours in a pot, with a quart of wine-vinegar, and with a piece of cotton or a sponge dipped in this infusion, wash the frushes twice every day.

When you have not the above drugs, take some of the aquafortis which a goldsmith has used to whiten his work, and use it alone in the same manner as the foregoing composition ; you may have it for asking for, the workmen always then throw it away, as having lost its strength.

Another remedy for a new or corrupted frog.

Take aqua-infernalis and use it in the same manner as the two preceding liquors, only not so often. The manner of making this water follows :

Aqua-infernalis.

Take verdegris and Spanih-flies, of each one ounce ; Venetian cerufs, two ounces ; powder the whole

whole, and put it into a bottle of brandy, and a pint of vinegar; boil this in a pipkin over a gentle fire, till it is half wasted, and then use it as occasion requires.

Incastellated or narrow-heels.

Many persons make no difference between incastellated heels and heels that are closed up; the latter may happen to the best of horses, and is often occasioned by the fault of a farrier who knows neither how to pare nor to govern a horse's foot; for a horse that has the finest feet in the world, may have his feet closed up in four or five times shoeing, when the farrier, by an injudicious application of the shoe, takes away all the force of that part; we will treat therefore, in the first place, of these close heels, and then of those that are incastellated, they being quite different from each other.

When a horse has his heels closed, you must begin the cure by softening his horn all over every day with foot ointment; put a bandage about it, which you may make with three or four lists of cloth sewed together, in order to render them as broad as the hoof; you must also put to it cow-dung, night and morning, and continue both for eight days. Then let the horse be unshod, and his feet well pared, without dividing the frush from the heel, which is a great error, though most farriers usually

usually practise it, in hopes, by that means, to enlarge the heel ; because most authors who have treated of this disorder, have spoke of opening the heels without telling how it ought to be done. Having proceeded thus far, before you put on the shoe let three lines be made on each side of the foot with a proper instrument, from the crown down to the bottom of the hoof, at the distance of about a finger's thickness from one another ; cut them almost to the quick, and then put on a shoe made in the following manner :

It must be very thick within and very thin without, we mean, in the braches, that so if the heels bear upon the shoe, the horn may slide under the brach without, in proportion as it grows. As soon as the lines are made, apply to them some of the foot ointment, and rub it all round the hoof, proceed thus for two or three shoeings, allowing about a month or six weeks between each, and by these means you will restore the feet. Many object against the length of this process ; but the horn of the horse's foot does not grow so fast as a man's beard ; if it be a fine horse, worth the labour and expence, you need not grudge the time allowed to make it as good as before.

Of incastellated feet.

We must first inform you what is meant by an incastellated foot, that you may distinguish it from
a narrow

a narrow or close heel, before you undertake the cure.

An incastellation seldom comes but upon fine horses, as those of Spain, Italy, Portugal, and Barbary, or upon such as are brought up in high grounds that are dry and mountainous; such horses are liable to have their feet very hollow, with small and narrow frogs, which, though it be a good quality in a horse, may, like other things, extend to excess. It also happens sometimes through the fault of farriers, when they hollow the foot too much and divide the frog from the heel, which by degrees, and in course of time, occasions the frog to become so narrow, and the two quarters of the heel to join so close, that it is difficult to see their separation behind, so instead of two heels there appears to be as it were but one; this is what we call *incastellated heels*; you may often see them in the riding academies, and among managed horses who are kept long without shoeing; it frequently happens that the riding masters do not perceive it, perhaps through ignorance, or because they think themselves above such matters, which they look on as the farrier's business; they trouble themselves about nothing but teaching to ride, and when they have shown you how to manage a horse in all his airs, they persuade themselves they are great men in their way, but when such men are left to themselves, and have the charge of conducting any grand equipage, it makes

makes them ashamed to be obliged to own they know nothing of the matter.

To proceed to the cure of an incastellated horse, you must begin by preparing his feet, in order to make them tender, just as you do in the foregoing case of closed heels, then have a shoe made in three parts, something like one that is adapted to all feet, which we carry with us upon a journey, or in time of war where there is a large equipage to conduct, but with this exception, that the shoe for all feet opens and shuts only in the middle, and this does so in two places; the toe makes one of the three pieces, and the two branches the others; the piece before must be punched quadrangularly, in order to receive the nails in form of a square, and every branch must have two holes for two nails, which make eight in the whole; the design of it is, to open the heel every dressing after you have unsoled the horse.

You must observe here, that the frog should be slit quite down between the two heels, and to the hair, and this slit should be very deep; then take a little tow and roll or twist it between your fingers to the length of the slit, dip it in spirit of turpentine and put it to the very bottom of the cavity; afterwards roll up two more parcels of tow, but larger than the former, dip them in turpentine made as hot as the horse can bear it, and fill up the whole cleft and the foot, binding them on with

thin pieces of iron rather than wood ; observe that you must not do this till after the horse is shod and the inside of his foot has been well washed with brandy. This being done, put a small iron pin or key between the two branches of the shoe, where there should be indentions to receive the ends of it and make it keep in. Leave on this first dressing, if it be winter, three days, if summer only two, and proceed so every time you dress the horse, and have ready a key a little longer in order to open the heels farther, which will be easily done, provided the horn be tender.

We have one thing more to observe, which is, that though you do not take off the dressing for three days, you must apply a good restrictive, as soon as the horse is unshod, and change it every day for three or four days running.

When you take off the rolls of tow to put on fresh, you must use the old ones to wrap about the heels and the hoof, especially towards the crown; continuing this course till the sole is sound and beautiful. At the end of fifteen or twenty days, proceed to the other foot, for this accident is always common to both the fore, but never to the hind-feet.

Another remedy for an incastellated horse.

The design of this is, for horses which are not altogether incastellated ; however, such as are not
firm

firm on their feet, must be prepared for the operation ; for this purpose you should soften their feet with the following ointment :

Take elder-bark, pitch, sweet-oil, yellow-wax, mutton-suet, and turpentine, of each two ounces, melt all together, and strain it through coarse linen ; fill the inside of the horse's foot with this, and anoint the hoof all round ; repeat it for some days, and let the ointment be very hot. When the feet are well suppled, you must pare the inside of them as much as possible, and almost to the quick, then open the frog as far as you can between the heels, and quite to the hair ; dress the wound with Venice-turpentine ; and afterwards, put on the shoe, described in the preceding article, and use the same keys.

A numbness or stunning of the hoof.

It often happens that a horse hurts himself against some stone or other hard thing, and numbs his foot so as to make him lame. This is the case we here speak of ; to know it, you must handle the feet, and when you find one of them hotter than the other, you may conclude that in that lies the pain which makes the horse limp ; have recourse to the following remedies : first, causing the foot to be well pared, then a composition to put in the hollow of it, and a sort of pul-tice to bind round the crown.

The composition for the inside of the foot is made with leys of wine, putting into it the flower of linseed, hogs-lard, honey, and turpentine, about the same quantity of each, and boiling all together till it is reduced to a pap, which apply very hot; this is a good preparation on almost every occasion, and fortifies bad feet.

A remedy to put round the foot of a horse, and which may serve also for a hurt in the reins of a horse.

Take old hogs-lard, common honey, rosin, and common turpentine, of each four pounds; sweet oil and leys of wine, of each one pint; pitch, and linseeds powdered, of each one pound; reduce what is dry to a powder, and boil the whole together to a sort of pap; which apply warm all round the hoof, dress your horse once a day till his lameness is gone, which will not be long.

How to make the hoof become soft and good.

Take sweet-oil, yellow-wax, mutton-suet, and turpentine, of each four ounces; melt the whole together, and when you take it off the fire, keep stirring till it is cold and of an unctuous consistence. Use this ointment to the horse's feet every day, which will keep them soft and moist, especially towards the crown, and by this practice, what grows will be good and firm. You must not expect those that are brittle and spongy to become good
all

all at once; but in course of time, by virtue of this ointment, you will find them so.

Another ointment to make the feet good.

Let your horse be shod as near as you can possibly, when the moon is in the middle of her increase, and then anoint his feet with the following ointment :

Take fresh-butter, mastic, gum, galbanum, pitch, rosin, and gum-elemi, of each two ounces; soak them twenty-four hours in a quart of vinegar, and add yellow-wax, two ounces; sweet-oil, turpentine, mutton-suet, and honey, of each four ounces; ointment of marsh-mallows, three ounces; put all together in a pipkin, over a moderate fire, without flame, and boil it till all the vinegar is evaporated; then pour it into another vessel and stir it till it is almost cold. Use this as the preceding :

For a horse that is tender-footed.

Some horses seem to have very beautiful well-made feet, and yet are very tender in the sole; they cannot walk on stony or hard ground because every little matter hurts their feet, and lames them. The cause of this is often looked for in the wrong place; to know where it is, therefore, you need only clap the palm of your hand, upon the horse's sole, which will itself shew you by
its

its extraordinary heat, where the pain lies; for this heat will be much greater in the fore-feet, where the disorder is, than in the hind. Sometimes in walking over stony ground, a small flint gets into the hollow, and is held by the branches of the shoe, so as to bruise the sole. The following remedy will serve in both these cases:

Take onions and pound them well; add hogs-dung, vinegar, common salt, and oil of olives, the same quantity of each as of onions; stew the whole together a full quarter of an hour, and let it just boil up; then apply it upon the sole, as hot as the horse can bear it. You may dress him in this manner every twenty-four hours, four or five days running, and this will harden the sole and take away the lameness.

A horse that has soft feet.

A horse is liable by this means to become lame, when he is obliged to work upon any pavement, or stony ground; when this happens, you must begin to unshoe him, and pare the inside of his feet almost to the quick; when he is shod again, apply the following remedy, which you must bind on with tow and splinters, and renew it every twenty-four hours:

Take two pounds of the oldest and fattest bacon, chop and pound it well, then melt it in a pipkin or stew-pan, and strain it through a coarse cloth;

cloth; as it comes through let it run into a pint of brandy, which you have ready for that purpose in another vessel; beat the whole well together, and apply some of it to the horse's feet three or four days running. This will bring them into good order, and harden the soles.

A brittle hoof.

There are so many infirmities that make a horse lame, that few people take the pains to know what they all proceed from; we have one yet to mention, which is the brittle hoof. Though the foot may appear beautiful and well shaped, and the horn good and smooth, a horse may be of little value on account of this defect; it is difficult to be known, at least without seeing a horse shod; but then, the farrier is obliged to use very thin nails, or else the hoof will fly as he drives them; the shoes also, must here be very light, for if you put heavy shoes on such a horse, and work him in mud, or fat heavy land, or in roads that are a little frozen, he will be apt to leave his shoes behind him, and so much of the hoofs as held them. When dealers have such a horse, they keep him a long time in the stable, in order to let the horn grow afresh, and then shoe him with light shoes, or shoes almost worn out, and nails that are very small in the shank. This defect, great as it is, may, however, be remedied in some measure, if you only

only keep the horn well greased with foot-ointment, and do not run into the error of many coachmen, farriers, and grooms, in Holland especially, who make use of train-oil, that of a whale, and chimney-foot, or the ashes of burned straw, to render the hoofs black and shining; if they were to do this to the hind-feet only, the evil would be but half as bad, because this accident never happens but to the fore-feet; but if these people are obstinately set upon having their horses feet all black, let them mix their foot in the foot-ointment, which will be never the worse, nor less nourishing to the horn. We confess that if they use it often, this ointment will come dearer than the train oil, because the brush will suck up a great deal of it; and on the other side, if our delicate coachmen and grooms were obliged to rub the hoof with their hands, it would undoubtedly injure them much, though it would save the ointment, because those fine fingers of their's were not made to be daubed.

An ointment for the diseases of the feet.

This ointment will keep the feet of horses sound, if constantly used, as also make those that are brittle and bad, good and sound:

Take yellow-wax, black-rofin, Burgundy-pitch, turpentine, honey, hogs-lard, mutton-suet, sweet-oil, of each half a pound; boil the whole together
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in a large pot over a charcoal fire where there is no flame, and take care that nothing boils over of these combustible ingredients; the whole being well boiled, pour it into earthen pots in order to cool for keeping. No man that keeps horses, should be without this, because a horse that has bad feet, can be of little service till you get them cured.

Another ointment for the feet.

Take an equal quantity of tar and mutton-suet, melt them together in an iron ladle, and it is fit for use. This is a well-contrived remedy for stopping up horses' feet that are very hard and brittle, as well as to rub upon their outsides, whenever you find occasion.

Rats-tails on the legs.

This defect is more common on the hind than on the fore legs, though the latter are not quite exempt from it. It is thus known; when you see from the hind part of the footlock, up along the nerves, a kind of line or channel, that separates the hair to both sides, this is a rat's-tail; in summer there appears a kind of small dry scab along this channel, and in winter there issues out a stinking humidity like the water from the legs; this defect is not common to delicate horses, who have scarce any hair on their legs, and who have been

nourished in dry pasture and among mountains, but it happens to fat coach or dray-horses, that have been brought up in strong, humid, marshy lands, and consequently are fuller of humours than the others. You must use the same remedies here as to horses that have the waters. A horse may work notwithstanding he has this disorder, because it seldom lames him, unless it be in winter, when he is obliged to work in mud, ice, or snow; it occasions a stiffness in the legs, and makes them trot like foxes, that is to say, almost without bending their joints.

Of the capelet, or passe campane.

This is a sort of tumour, which begins at the hough behind, and descends along the nerve; it is very hard to the touch, and consists of a humour which is soft at first, but hardens with time, and forms itself into a callus; while it is yet soft, if you take care and understand it, the cure is easy, with only giving a quart of wine and as much urine mixed together, and having a quarter of an ounce of sal ammoniac melted in them; besides which, you may apply some of it with a sponge upon the swelled part, and bind it on with a bullock's bladder, to keep it from evaporating, with a broad ligature; repeat this eight or ten subsequent days, and the capelet will disappear; but if you wait till it is quite hardened, there is nothing

nothing but the actual cautery can cure it, which must be given in the following manner :

Make a line in the middle, drawing it from the point of the hough down the whole length, then make three more on each side, as you are directed to do round the footlook for windgalls; treat the horse afterwards in the same manner as in the article for that distemper.

Another remedy for the cape let.

If the case be recent, you may take spirit of turpentine and wine-vinegar, an equal quantity of each, and beat them up together ; rub in some of this very hard with your hand twice every day, and continue it till the horse is well. For want of spirit of turpentine, you may make use of brandy and a bit of soap, with which rub the part disordered three times a day till it is well.

Of the esperon or spur.

This disorder comes just above the preceding, but seldom makes a horse limp; it disfigures him and that is all; your sprightly, gay, startlish horses are most subject to it, because it proceeds from their skittishness with their hind legs, when they strike the hough against a bar, a pillar, a wall, or whatever is in their way, and by the violence of the blow, bruise the part and make it swell, so that it looks like a bladder full of wind. If this hurt

be recent, it is easy to cure with only eight or ten pails of cold spring-water, bathing the tumour well and often with a large sponge ; this will soon reduce it, and may be entirely depended upon, simple as it is, provided the hurt be fresh and there is no neglect in making the application. A more inveterate spur may be cured with the same remedies as the capelet, if you take away every thing he can hit himself against in his gambols.

If the disorder has been of a year's standing or more, you must open the swelling with your fire-iron, clasp the skin fast in your hand, to keep the iron from touching the bone of the hough; having pierced it, a red water will issue forth; you must then dress the wounds with tents of tow dipped the first time in warm wine with sugar melted in it ; afterwards dress it every day with the tents in the same form, dipping them in tincture of Succotrine-aloes, and continue thus till he is well.

Relaxed or extended nerves.

It is not uncommon for a horse to relax by a strain, either when he is at work, or under any operation of the farrier, or at any other time, of the nerve which goes from the point of the hough, up the hind part of the thigh ; this accident often makes him stop short, being no more able to move
his

his leg, nor to support himself on it, than if the bone of his thigh was broken.

A remedy.

Take spirit of turpentine and wine-vinegar, the same quantity of each, and beat them up well together ; dip in this two large sponges, and apply them along the nerve ; bind them on with a thick wrapper, a bullock's bladder, and a broad swathe over all ; repeat this dressing eight or ten days following, and take special care that the horse never lies down all that time, nor indeed for a fortnight or three weeks longer ; for which purpose, you must tie him with four reins, two to the rack and two to the manger, so that he can either eat or drink without moving out of his place. The eight days being over, rub the part on the following days, to the number of ten or twelve, with this composition:

Take oil of bays, ointment of marsh mallows ointment of poplar-buds, ointment of roses and honey, each a quarter of a pound ; let the whole be well mixed together, and used once a day, which will completely fortify the nerve. At a month's end the hair will be grown again, and then you may work the horse as before.

Disorders

Disorders in the haunch.

A horse is very often lame in the haunch, but the difficulty is to know what that lameness proceeds from; almost every one treats a horse that is lame here, as pricked or unhaunched, yet the causes of such lameness are many and various.

First, he may have received a very hard blow upon either side of the croup; when this is the case there is no great danger.

Secondly, he may have been struck upon the corner of the haunch which is over the bone of the joint, and yet nothing be displaced. This is more to be feared than the other, but a horse may be cured of it in a little time, with good remedies.

In coming out at a door and turning too short, a horse may strike the corner of his haunch and lame himself.

He may also bruise the hip-joint, which is that which appears next to the flanks, of the same height as the shoulder; this part is very sensible, and a horse may be lamed here for a long while, though nothing be put out.

Some farriers confound all these accidents with one another, and all hurts in the haunch are with them the same. They generally ignorantly say, your horse is unhaunched or pricked, and have recourse to remedies that can be of no effect.

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We will treat of the dislocation of the haunch, after we have gone through the other cases.

When you have discovered the hurt to be from one of the above causes, make the following composition :

Take linseeds, beat or bruised in a mortar, rosin, pitch, turpentine, sweet oil, and honey, of each eight ounces ; leys of wine a quart ; boil the whole gently together a full quarter of an hour, and when you take it off the fire, stir it till it is of a proper warmth to be applied to the part afflicted. Renew the application twice a day, and every time clap over it a piece of soft paper, or a bladder, or a bit of moistened parchment, which will give it the better effect. The same composition is good for the reins, for relaxed nerves, and for tired legs. If you continue it for ten or twelve days, you will discover very manifest good effects ; but the horse must not lie down the whole time you use this remedy.

A false step.

What we call a false step, is a strain that a horse receives by some violent wrench, occasioned by his foot slipping into a hole, or by travelling on uneven ground, or in frosty weather.

If the hurt is fresh, it will be the more easily cured. The best way is, immediately upon his receiving the strain, or as soon as you can come

at

at any running water, to lead him in, and make him stand there a full hour, which will prevent any lameness ensuing. Repeat this bathing four or five times in twenty-four hours, leaving him as long in the water each time. This will entirely cure him without any other remedy. But if it be an old hurt, as all the ligaments of the joint must have suffered, the case may be a long time in hand, in spite of the best remedies.

There will appear to be very good reasons for this, if we consider that as the legs of a horse carry a great burthen, they must be fatigued, and he cannot lie down nor rise without much pain. It is not the same with a man who keeps his bed, or carries his arm in a sling for a violent sprain, and therefore as he gives the part no fatigue, it is soon well.

Remedy for a false step.

Take tar, and rye-flour, with the same quantity of turpentine, and half as much pigs fat; mix the whole together, and stew them over the fire, to the consistence of a very thick pap. When you take it off, add a gill glass of spirit of turpentine, and stir it well in. Apply this as hot as the horse can bear it, round his footlock, with tow, a pig's-bladder, and a broad bandage, for any thing narrow would make the nerve above swell. Repeat this dressing every day, till you see it has its effect. The tow which was used first, may
serve

serve a long time, only putting on a little fresh pultice when you open it. If you do it night and morning, instead of once a day, the horse will be the sooner cured.

When you perceive that the horse mends, you may leave off the above remedy, and only use, in its place, marsh-mallow-roots, boiled and beat to a pap. There is no occasion to apply them warm. Towards the end of the cure, you must cleanse the part with warm water and sope, and afterwards take the horse out, and give him an easy airing, without forcing him to any thing, for fear of renewing the strain. You must ride him to prevent him from leaping, which he might do, if led by a servant. He must not lie down during the whole cure, nor stir out of his place before this.

Of the comb, or crown scab:

The crown-scab is occasioned by humours that fall upon a horse's feet, round the coronet, just above the hoof. It sends out a thick moisture, like muddy water, which prevents the hair of the crown from falling down equally upon the hoofs, and makes it divide all round, like the teeth of a comb. This disease never happens to horses bred up in dry and hilly countries, but to those only who have been used to low and moist meadow ground. It is very common to horses who have

abundance of hair upon their legs. There is no great difficulty in curing it, but in this case you should not work the horse in a large town, among the dirt, rubbish, and filth, that may clog up the streets, because the disorder may return again another winter, after it has been once cured, though the horse has been fed upon dry provender, but his feet not having been kept very clean.

The remedy is only to cut off the hair with a pair of scissars, as close as you can, and then rub all round the crown, night and morning, with black sope, and at the end of two days, to wash it with warm wine. When the foot is dry, you must begin again with the black sope, and repeat it five or six days running, washing the part every other day with hot wine. Thus you will see the hair become smooth, and the crown-scab disappear.

Another.

Though it has been said, that this disease happens to horses that have much hair on their legs, we do not mean that all horses who have much hair there are subject to it. It proceeds also from sudden chills, and an ill management of horses when they work in mud, and likewise when a horse is put up in a stable without having his legs and even his whole body well rubbed down, for
this

this will cause those humidities to fall down upon the lower part of the legs, and the filth continuing there, produces small blisters, that break and throw out a moisture, which, between whiles, take off the hair, and running down in channels, make the figure of the teeth of a comb, as before described. If the foregoing remedy does not succeed to your satisfaction (though it be very good provided the horse be kept clean) make use of the following :

Take strong mercurial blue ointment, half a pound ; rub the parts affected with it ten or twelve days following, having first shaved off the hair.

Watery sores on the legs.

This defect happens to horses loaded with hair on their legs, and fed in such marshy countries as the preceding ; to distinguish the disease, observe the lower part of the legs, and if you find them swelled, especially those behind, between the foot-lock and heel, and that there issues from them a stinking moisture, conclude this to be the water in the legs which is often the fore-runner of the two subsequent diseases, and therefore should never be neglected ; to stop the course of it, begin by taking some black hellebore-root, and steep it in wine-vinegar ; then make an incision behind, in the upper part of each thigh, just below the but-

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tock ;

tock; you must a little loosen the skin of these incisions, that there may be room to put in the hel-lebore, to about the size of a finger; then give a stitch at each cleft to keep it in, leave it there till it drops out of itself, in which time it will draw out abundance of matter, and by that means give a revulsion to the ill humours that may descend. If the swelling does not diminish, shave off the hair all round the leg, so far as it extends, and as the moisture appears, in order to apply the following remedies:

A remedy for watery legs.

After having shaved off the hair behind the footlock, cut the latter across the spur, and loosen the skin from the flesh on both sides of the cleft, that you may gently find a way to a thin skin full of water, in the shape of a little bladder, and about as large as the end of one's finger; take this away easily, for fear of hurting the nerves and ligaments that hold the joints of the footlock; then foment the wound with fresh urine, and wrap it with a bandage and tow dipped in spirit of turpentine, keeping it close that no air may enter; you must leave on this first dressing twenty-four hours, and when you take it off, have another ready to clap on in a moment, without staying to look at the wound, which you must treat in this manner, till it is quite closed up. This last operation is very good

good, and cuts off the communication of all ill humours that may fall upon the legs. But if you have no farrier that knows how to perform it delicately, have recourse to the following remedies :

A remedy for watery sores.

Take litharge, two pounds ; verdegris, green-copperas, common alum, white-copperas, gall-nuts, of each one pound ; reduce the whole to powder, and steep it twenty-four hours in a gallon of vinegar ; then with a sponge dipped in this, wash lightly twice every day the parts which the water oozes from, continuing to do so till the horse is well ; the hair must be here cut off.

Another.

Take verdegris, gall-nuts, green-copperas, and white-copperas, all finely powdered, of each two ounces ; roch-alum, one ounce ; white-wine vinegar, three quarts ; pound the drugs, and then boil the whole in a large earthen pot ; use this every night and morning to foment the horse's legs till they are well.

Another.

Take æthiops-mineral, four ounces ; verdegris, roch-alum, gall-nuts, pomegranate-bark, all powdered, of each two ounces ; hogs-lard, one pound ;

pound ; mix the powders with your lard cold in a mortar for an ointment, which apply to the scabs.

Another.

Take roch-alum and white-copperas, a pound of each ; powder them and put them into two gallons of water, which boil to the consumption of half; you may keep this water as long as you please, in order to use in the following manner :

Dip a small sponge in it, once every day, and draw it lightly over the parts that discharge the humour ; if the grapes begin to run, this water alone is sufficient to cure them ; but in order to prevent their returning when winter comes on, you must purge the horses that have been attacked with them, and keep their legs very clean, with a view to turn back the humours; for without very great care, you may have warts at last come in the shape of grapes, and then you will have much more trouble to cure your horse than before; they are both indeed of the same kind, with this difference, that the grapes only grow to the skin, and are smaller and more numerous; whereas warts are large, for some of them, sometimes, are larger than nuts, and are with great difficulty removed, especially after they have been long growing.

A re-

A remedy for warts.

We believe it needless to repeat the rules for distinguishing of warts, our business, at present, is to know how to remove them; first rub them every day with lapis infernalis, and afterwards, apply the same remedies that are prescribed for grapes; continue the use of the stone till they quite disappear, but touch them with it very easily, especially if they grow to the ligaments, which you may readily discover; for want of the lapis infernalis, apply some of the following stone, pulverised, and put the remedies over it.

A stone to eat off warts, or proud-flesh.

Take green-copperas, wine-vinegar, and urine, of each one pound; put them all into a glazed earthen pipkin, and set them over a gentle charcoal fire, till the humidity is quite evaporated and the whole becomes dry; then augment the fire till what there remains becomes as hard as a stone; take off your pipkin red hot, and put it into a cellar, or some other cool place, a whole night; in that time, the stone will loosen itself from the pot, and you may use it in powder, as above directed.

Fleshy

Fleshy frogs.

What we call *fleshy frogs*, are never found but on the fore feet; they are very inconvenient, because every horse that has them, must have a large, and consequently a very heavy foot; such a horse fatigues himself more than another, and cannot, for that reason, do so much work as one that is well.

The case is known by only taking up a horse's feet and looking at them, to see if they spread very much, and if the frog grows as high as the shoe. It is this that hinders a horse from working upon any pavement, or rough ground, because the frog, by growing so high, comes to the ground or pavement, and is so bruised as to make the creature lame; it is usual to shoe such horses with large frost-nails, but that is both a troublesome and expensive method, because they must be new-shoed as often as the nails wear down, or the lameness returns; those who cannot distinguish fat-frogs from low-heels are often deceived, and have their horses shoed as for the latter defect; they puzzle themselves about opening the heels, and divide them from the frogs with their buttresses, by which means they take away the strength of that quarter, which the branches of the shoe ought to bear on, cause the heels to close up, and make the horse lame; whereas they ought not to separate
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the frog, but rather to fortify and nourish the heels with good foot-ointment, bound on with list; this will make them grow, but not very suddenly, because the horn of a horse's foot is a very hard substance; it requires at least five or six months to restore feet that are spoiled, and consequently there must be full as much time for heels that are naturally weak to become strong.

Full or clogged-up feet.

What we call a *full or clogged-up foot*, is a capital defect, because very difficult to be cured; nothing can be done for it without great pains, and what we can do at most is so little, that it is hard-worth while to take them; a horse in this condition can do very little service, not being proper, either for the saddle or for drawing upon the stones. He can be useful only at plough, and that too must be in very light ground.

The way of shoeing him is with vaulted shoes, that he may bear only on the edge of the horn; and to keep this good, you must rub it often with foot ointment, from the crown down to the bottom, otherwise the horn will break, after which, there can be no possibility of fastening a shoe to it, and indeed the shoe is then worth more than the horse.

Circled feet.

Circled feet are very easy to be known ; they are, when you see little excrescences round the hoof, which inclose the foot, and appear like so many small circles. Dealers who have such horses, never fail to rasp round their hoofs, in order to make them smooth ; and, to conceal the rasping, when they are to shew them for sale, they black the hoofs all over ; for without that it may easily be perceived what has been done, and seeing the mark of the rasp, is a proof that any horse is subject to this accident. As to the causes of it, in some it proceeds from the remains of an old distemper, from their having been foundered, and the disease cured without any care taken of the feet, whereupon the circulation of the blood not being regularly made, especially round the crown, between the hair and the horn, the part loses its nourishment, and contracts or enlarges itself in proportion as the horse is worked.

If these circles were only on the surface, our jockies' method of rasping them down, would even then be good for nothing ; but they form themselves also within the feet as well as without, and consequently press on the sensible part, and make a horse limp with ever so little labour.

One may compare a horse in this condition to a man that has corns on his feet, and yet is obliged to walk a long way in shoes that are too tight
and

and stubborn; a horse therefore is worth a great deal less on this account, notwithstanding that we may in time, by continuing the daily application of the foot-ointment, bring him a little to himself. But this must be a work of time indeed, because his feet must be quite changed, before they can be good, which, with all the care you can take, they will hardly be in less than ten or twelve months. You may work him however in the mean while, observing always when you put him up, to cleanse the inside of his feet well, and fill them with cow-dung, fried with pigs-fat and a little vinegar. And even if he does not go out of the stable, never fail to do this twice or thrice every week, or indeed every night, till the circles of the feet are gone.

Battered soles.

A battered sole is, when a horse that has flat feet loses a shoe, and travels some time without it, or when he gets a stone in his foot, which is kept in by the shoe, and walks upon it till it bruises the part. If this stone continues there long, and you are obliged to pull it out, you are certain what made your horse lame. But when it drops out of itself, some ignorant persons look for the cause of their horse's lameness, when that cause no longer exists. The best way, therefore, is to get him instantly unshod, and have his feet

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pared;

pared ; after which, examine them well, by striking gently with a farrier's hammer all round, to see if he has been any where pricked in shoeing. If you do not find any thing thus, take up the foot again, and press it all round gradually with pincers, observing if he winces, and catches away his foot. Even this may not be sufficient to find the cause of his malady. You must next take the hammer, and strike him on the sole ; and if he then shews any sign of pain, you may know what the grievance proceeds from. In order to remedy it, you must apply some healing composition, or fill the foot night and morning with cow-dung, fried with hogs-lard and a little vinegar ; or common tar and grease, an equal quantity of each, melted together. This, with rest and time, will certainly cure it.

The bone-spavin.

When the bone-spavin happens to a horse in one leg only, it makes him lame ; but when it seizes both, either behind or before, he does not limp at all. His joints, however, are not free, and consequently he cannot be sure-footed. The motion of the joint between the hoof and the footlock being impeded, it can be of no great service ; and when the disorder is alike in both legs, and the horse is not lame, many people are ignorant how that joint is formed, and what use it is of

of in walking. Purchasers take such horses without knowing them, and are not convinced of their error till it is too late. You should examine a horse thoroughly before you buy him, and in particular, see if all the joints of his fore-legs move with equal freedom. Most horses that have the bone-spavin, are very apt to start when you go to take up their legs, and will hardly let you touch them with your hand. Examine them well, therefore, with your eye, and see if between the footlock and the crown, the leg descends even and smooth, for if you see any protuberance between the flesh and the skin, that looks like a knot, or kernel, you have found the defect. If the tumour be yet soft, it will be the more easily cured; but in time it grows very hard and callous, and consequently very obstinate. A man that has cured twenty of these in his life-time, cannot fairly promise for the twenty-first, for the leg perhaps may be never the better, after all the good treatment in the world. But if you have the good fortune to take it in hand at first, before the swelling is grown hard, you must shave off the hair, and apply once a day some of the strong ointment which you will find in the articles of blows on the nerves; continue this for about a fortnight, after which apply marsh-mallow-root, well boiled and pounded, and continue it also once a day for a fortnight or three weeks longer, fastening it on
with

with a bandage. You need not expect, however, that this method will cure an old bone-spavin, for that you must unsole your horse, as the farriers know how, and the sole being raised, bleed him in the foot, and then dress the sole with turpentine, a little warm, and bind it fast down with tow and splinters. The foot being dressed, give him the goose-foot fire, that is, draw a line upon the middle of the joint, from before the footlock to the fore-part of the crown, and then draw three others on each side, encircling the joint with them all round, as they descend. The fire should be given more fiercely here than for wind-galls; but the first line should not be so strong as the others, because it serves only for a guide, to make the others by. When you have given the fire, according to art, in the manner here set down, you have room to hope the disorder will go away, and the horse become pretty free in the joints; but you are not to expect as much service from him as if he had never had any defect. He may be fit for short excursions, by way of pleasure, but not for any long journey.

Spavins or blood-spavins.

Spavins may come upon all sorts of horses, but some are more subject to them than others, according to their natures and habits; as there are
three

three sorts of spavins, we shall shew what kind of horses are most liable to each particular species.

Dry spavins happen most frequently upon slender delicate horses, such as those of Spain, Italy, Portugal, Barbary, and Arabia, or upon those that are used to run in dry mountainous grounds; they may come also by descent; for if a stone-horse has the spavin, out of twenty mares he shall cover, nineteen will have spavin foals; one ought to be very cautious, therefore, what horse we make use of to breed from.

Though the dry-spavin be a capital effect, yet when a horse has it equally on both sides, and is put to the manage, provided he falls into the hands of a good master, who has patience to put him well on the haunches, this horse will be more sprightly than any other, and more agreeable to the sight, as both his hams will beat exactly alike; but whatever good air he may have, it is impossible he should be fit for the field, and that for many reasons:

First, such a horse never goes swift, and yet gallops much harder than any others; so that an ancient man, or one of a weak constitution, cannot long bear the fatigue he must give him in his loins; even in pacing or trotting, he lifts up his hind leg so high and brings them down so hastily, and then catches them up again, as if he trod on thorns.

thorns. When a horse has the spavin but on one leg, it is a very disagreeable thing; you cannot take too much care therefore, as we said before, of the houghs of delicate horses, and when a swelling, ever so small, appears upon the flat of the lower part of the hough withinside, though the horse may not limp, you ought to be apprehensive that in time, and with a little labour, the spavin will increase on him.

The second kind is called the *fat-spavin*, which comes almost in the same place as the other, but is larger, and is most incident to horses that have been bred in fat marshy lands; this kind sooner or later lames a horse, if regard be not had to him at the beginning; when it happens to two opposite legs, the horse does not limp any more than in the former, but then he is good for little, and the effects of this spavin are different from those of the other; for whereas in that, the horse lifts his feet very high, and bends his houghs with violence; in this, on the contrary, he bends his houghs with pain, and consequently is very unfit for the manage, as well as for the field.

If a horse has this spavin but in one leg, and works ever so little, he will certainly limp, and those who are unacquainted with spavins, look for the cause of it in his feet or haunches.

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The third kind is called the *ox-spavin*, and is the worst of all the three. It will admit however of a cure as well as the others.

A remedy for spavins.

Take five or six bits of house-tile, rub them round to about the size of a crown-piece, and make them red-hot, then having thrown the horse, and rubbed the spavin well with a stick, made on purpose, or the handle of a hammer, take the tile-shreds out of the fire, with pincers, put them in a linen cloth that has been dipped in vinegar, and apply them to the part, leaving them there for some time ; when they are a little cool, heat them again, and put them in the same cloth as before, and thus apply them successively till the hair comes off with ever so little pulling, as if the part had been scalded ; all this being done, let the horse alone till the eschar falls off the burnt place ; then rub it with a pomatum made of hogs-lard and honey, till the hair comes again.

Another.

Though the preceding remedy has very often succeeded, this which follows is as much to be depended on ; it is a strong unguent, which is fit for all sorts of hard swellings and callosities that we want to get rid of :

How to make the strong ointment.

Take euphorbium, corrosive sublimate, black-hellebore, Spanish-flies, and crude-mercury, of each one ounce ; flowers of sulphur, two ounces ; and oil of bays, six ounces. The drugs being all pulverized, kill the mercury in the flowers of sulphur till you can see none of it ; then mix the whole in the oil of bays, and make an ointment, with which anoint the spavin, or any other hard protuberance that you have a mind to dissipate. You may save the trouble of mixing the mercury and sulphur, by buying three ounces of æthiops-mineral. Use it once a day, the hair being first shaved off, for three days successively ; in that time an eschar will fall off, and then you may dress the part with the same pomatum as is prescribed in the preceding article.

Another remedy for spavins.

We could insert many remedies for spavins, which would be successful ; but the best way of all is, to give the fire, when you can get a farrier that understands his business. In order to this, he must throw the horse, and then rub the tumour with his stick or hammer-handle ; then let him draw a line with the hot iron or fire-knife as before described ; he must take his stroke downwards, through the middle of the spavin, and then

then make three more lines on each side; but the operator should have a light hand, and not cut quite through the skin; though he draws the knife several times over each line, he must never let the knife pass upward against the hair, but always downward; after the seven lines, make four holes with your fire-iron, and put in each a pellet of black pitch, which you must melt with your iron.

After having given the fire, put writing-ink upon all the lines, and continue this application for ten successive days; afterwards make use of the ointment for burns, that has been already prescribed, and continue it till the skin is quite united.

Every horse that has had the fire given him for spavins, swellings in the houghs, or windgalls, ought to be three or four months without work, and, if possible to avoid it, never perform this operation in summer, especially when the flies are plenty, neither must you do it at the very time that the horse limps, because then he will never be cured. Let him rest a fortnight or three weeks. The best way is to give the fire as soon as you perceive the spavin, without waiting till the horse is lame.

Those who are no judges of spavins often deceive themselves, for as soon as the horse has rested a little, his lameness is over, which was owing

only to his work. There is yet another sort of spavin below the hough and on the outside, whereas the true spavin comes within ; the same remedies are equally good for the jardon, which is a callous tumour near the same part.

Varices.

These are swellings that come within the hough, very near the seat of the falanders, where there passes a large vein which descends from the flat of the thigh to the bottom of the leg. Varices proceed from the violent extension of this vein, which forms a sort of knot about as big as a filbert, and which, by degrees, grows as large as a tennis-ball ; it moves when you touch it, and seems not to be fixed, so that one may take it for a ball between the flesh and the skin.

To cure this, you must cut the vein above and below the hough ; preparatory to which, you must make a ligature at the top and bottom, to keep back the blood ; then make the incision between the ligatures, and afterwards disengage the tumour from the flesh. If a farrier dares not undertake this operation, though very easy and without danger, let him take a hot iron, pointed at the end, and pierce the middle of the swelling, taking care not to touch any part of the joint of the hough. At the bottom of the orifice, let him put some little pieces of corrosive sublimate, and
fill

fill it up with sulphur or pitch; then with the point of the burning-iron, let him melt these ingredients, that the sublimate may produce its effect, and corrode this superfluous flesh, which will consequently die away; you may then dress it like any common wound.

A vessignon.

There are two sorts of these, the first is called a *simple vessignon*, the second a *windy vessignon*, which is the most dangerous; it is a small skin which is found in the middle of the flat of the hough, and which being now swelled, forms a bag of bloody sanies, that in time make a horse lame; all horses have this skin, but they are not all subject to have it filled in this manner; the sooner you take the cure of a vessignon in hand the better.

The simple vessignon appears without the ham, and the other within; if you squeeze it with the hand on one side it rebounds to the other; this disorder, when recent, is easy to cure; but if you let it get ever so little head it becomes a difficult case.

In some horses it is the effect of too much fatigue, in others of a violent strain; the latter sort, how large soever it may be, is most easy to cure; as soon as you perceive it, take about a quart of wine vinegar, and the same quantity of urine, mix them together, and dissolve in them a quarter of
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sal ammoniac with a sponge dipped in this composition wash both sides of the hough seven or eight times a day, and continue to do so for about a fortnight, in which time the swelling usually goes away; that this remedy may be the more efficacious, it is proper to have two sponges, and dip them in the same composition, applying one on each side, and putting over them a pig's or other bladder, with a good compress of linen cloth all round the hough, sewed on close, that nothing may come out; bind down the whole with list, but not too tight, for farriers often make their bandages so tight as to fail in a very inveterate case; but the beginning swell the nerves, and lame the horse, and then they lay the blame of their ill success on the medicines, without reflecting that they themselves are the cause of it; if the remedy does not succeed, it is a sign the case is of longer standing than was imagined, and when that is the case use the following:

Take about two quarts of spirit of wine, in which dissolve half a pound of camphor, and use it in the same manner as the former, and about the same time; if neither of these has any effect, which would be something extraordinary, you must absolutely give the fire on both sides the hough, in the same manner as before described; but we advise an incision to be made with a sharp instrument; after letting out the sanies, draw off the remainder by pulticing it, as directed for the strangles.

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If a man expects to succeed in this, and to get reputation by what he does, he must never give the fire, either for the vessignon, the spavin, the curve, or the windgall, at any time but about autumn, when the flies disappear, and let the horse be kept all the winter in the stable, without going ever abroad; even in the next spring you must take him out only in the morning early, to walk him through the dewy grass, or green corn; having done this for some months, you may be assured that no accident will ever happen in the place where the fire was given.

Solleyfell says, " I remember to have seen my
 " deceased father perform this operation, by way
 " of precaution, to horses for Lewis XIV's own
 " riding, and having practised it a long while my-
 " self with success, without an accident, even to
 " horses whose legs seemed quite ruined, and they
 " have done nine or ten years service afterwards.
 " For a mare or gelding, instead of keeping them
 " in the stable during the spring, the shortest way
 " is to put them to grass; but a stone-horse, if he
 " be not kept in the stable, must be in a close by
 " himself, and walked in the morning, as before
 " directed. It is trifling to object to the great ex-
 " pence of keeping him so long; for if the crea-
 " ture should become useful afterwards, that ex-
 " pence will not be regretted. The grand point
 " is to have the fire well given; I have never
 " known

" known six persons able to do it to perfection,
 " though every country farrier thinks himself so.
 " A farrier, I insist on it, cannot have a light hand,
 " and consequently cannot use his tools with de-
 " licacy; if he makes his knives too hot, he cuts
 " the skin quite through; if not hot enough, he
 " tears it; he must have seven or eight of them to
 " change as they cool, and not heat them in a
 " forge but in a charcoal fire; it signifies nothing
 " to tie a horse for this operation, you must abso-
 " lutely throw him down, as if you were going to
 " geld him; after having given the fire, there must
 " be ink put on every line for nine successive days,
 " in which time the eschar will fall off; you must
 " mollify the wound with ointment of marsh-mal-
 " lows, or ointment of roses, every day, till the
 " skin re-unites; this may take up five or six
 " weeks.

" The method of giving the fire, comes from
 " the Arabians, who do it in almost all cases; an
 " hundred years ago it was quite unknown to us;
 " they give it with golden knives, and formerly in
 " France it was done with silver; I have used
 " these myself, but lately, experience has con-
 " vinced me, that steel knives are as good."

The curb.

This accident may happen in different man-
 ners, as from the vessignon, of which we have
 treated

treated ; a horse often receives a strain in working, or by slipping his foot in a hole, or in marshy ground, out of which he pulls it with pain, and by that means wrenches his hough, without dislocating any thing ; yet the creature may be lamed without speedy care ; the ligaments of the hough being stretched, cause a great inflammation within, the hough swells from the middle (the seat of the vessignon) to the bottom, where spavins and varices appear, and if not speedily remedied become incureable, at least without giving the fire, which is the only remedy, and that too often fails in very inveterate cases ; but at the beginning you need only use the same remedies that are proper for vessignons, which having in part dissipated the tumour, make it more easy to bar the vein both above and below the hough.

In order to bar the vein, you must throw the horse ; then look for the vein that proceeds from the thigh along the leg, and the joint of the hough withinside ; make an incision in it with a bistory, or a pen-knife, but first with a light hand open the skin, and with a wild-goat's horn, or some other like thing, disengage it from the skin and the flesh, between which it runs ; when you have got the horn under it, take a piece of waxed silk, or fine cobblers-end, and bind the vein tight that it may not bleed too much ; afterwards make another opening, above the hough, and do the same as be-

low ; then cut the vein in two between these ligatures, and with a bit of cleft stick, about four inches long, take fast hold of the end of it, and by turning the stick gradually, you will pull it out ; supposing it to be a young horse, there is no great danger if the vein breaks, because of the ligatures above and below. It is needless to use any other remedy in dressing the wounds than salt-butter applied night and morning ; let there be at least an ounce of salt, powdered very fine, to a quarter of a pound of butter, and this will do more good than all the ointments you can get.

If by chance an end of the vein remains, or any impurity enters the wound, that may cause an inflammation, you must use ointment of marshmallows, or a bath made of the roots of that herb, twice every day ; for want of both, leys of wine and hogs-lard may serve the turn ; put about half a pound of lard to two quarts of the leys, and boil them well together, stirring afterwards till it is cold ; with this rub the swelling twice every day ; if the curb be new it will certainly be cured.

Most farriers perform this operation for the spavin, but experience shows their ignorance in so doing, because the spavin has nothing to do with this vein. It may be useful, however, for varices. There are others who perform the same operation for watery fores or humours, which fall down the legs ; many have fallen into this error, which is

now

now abandoned, since a more perfect knowledge of anatomy has been acquired of the several parts of a horse.

It is true that in barring a vein for the waters, some open it before it is bound, and draw out a great deal of blood; after that they tie it above and below the orifice, and cut it below the two ligatures; this will relieve the horse for some time, but as the arteries carry the blood down, and it cannot ascend again as usual, it produces a greater abundance of humours than before; for this reason we by no means approve of their manner of operation.

GENERAL REMEDIES.

AFTER having taught the knowledge of many diseases and accidents, it is proper we should insert some necessary and general remedies, according to the nature of each disorder, and the convenience of those who have the care of a great number of horses. For example, a horse that eats and drinks well, and yet does not thrive, or one who by any means is hindered from eating and drinking as usual, should have the following remedy given him:

A purge.

Every one ought to know that the most gentle purge is sometimes dangerous, and kills a horse if he be not prepared for taking it some days before;

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many ignorant persons, when they see a horse's dung in small balls, black and dry, and seeming even to be mixed with blood, are of opinion that he is burnt up within, and therefore ought to be purged; because they have purged two or three such without preparation, and by chance succeeded, they imagine they must still go on in the same track, and when there happens any accident to a horse, or they kill him by their medicines, they insist on the justness of what they have done, and attribute the misfortune to some other cause.

When a horse is heated, and the balls of his dung are close and hard, you must debar him of oats, and only give him, for two or three days running, bran and warm water; if he can bear honey, you may put a little of that with the mash. The evening before you purge him, administer to him a laxative clyster, for which you will find many recipes in this work; the next morning, after he has fasted five or six hours, give him the following pills, and let him fast as long after he has taken them; you may repeat all this again in two or three days, for it will never do any harm.

Purging pills.

Take hepatic-aloes in powder, manna, and honey, of each half an ounce; sal polychrest powdered, an ounce; if the horse be strong, add
half



half an ounce more of manna ; mix the whole together, and make it up into pills of the size of a chestnut, which roll in liquorice powder, and let him swallow them one after another ; give him a small glass of wine after each, and when he has taken them all, leave him to himself ; if you purge him for a giddiness in the head, or defluxion in the eyes, add half an ounce or an ounce of powdered agaric, in proportion to the horse's strength. The next day, at the same hour that you gave him the pills, if they do not yet work, take him out of the stable, and walk or trot him till the medicine begins to take effect ; then put him up again and cover him warm ; you must offer him nothing but warm-water with bran and honey, if he will take it ; let him have a good mash of this five or six hours after the purge begins to operate.

Another way of purging a horse.

As all purges are not alike, you must know the distemper of a horse before you purge him ; there are some purges to cleanse the intestines, others for pains in the head, and others to purify the mass of blood, whether in the farcy, the mange, the reds, or any other foulness. Having had the precaution to prepare your horse as before directed, and even bled him, if there appear to be need of it, a day or two before let him take the following :

Take

Take six ounces of æthiops-mineral (which you may make yourself with two ounces of quicksilver and four ounces of flowers of sulphur, rubbing them in a mortar till the quicksilver is quite killed) half an ounce of sal-prunellæ in powder, and a quarter of fresh butter; make this into eight pills, roll them in liquorice-powder and give them as the preceding. This purge is very good to cleanse away all corruption, and kill the worms in the body of a horse. But if his lungs are ever so little damaged, it will hasten his death, which is no great matter, because he is not in a condition to do any more service, and so the sooner he goes the better. It is quite otherwise with mankind, who may be useful on earth after they are touched with a consumption, as well for the management of their families as for civil society.

How to make liver of antimony.

Take four pounds of common salt petre, and five pounds of antimony, beat them separately to a coarse powder; then mix them, and put them both in a large crucible, iron mortar, or pot; a copper or brass vessel is not fit for the purpose; set it on fire with a piece of charcoal, and get out of the way as soon as you can, for the wind and smoke may take away a man's senses and suffocate him; you must let this cool four

or

or five hours in the open air, and then turn up the matter on a linen cloth, to receive all that falls out of itself; the liver of antimony will remain at bottom and the dross at the top; on the side where you see it on fire, you must divide the one from the other, which is very easy, and that being done, the antimony will appear brown, almost of the colour of bullock's liver, and shining; pound it, pass it through a sieve, and keep it for use, according to the prescriptions in several places of this book. The dose of it singly is an ounce morning and evening, mixed with the horse's oats or bran, and let these be a little wet that the antimony may stick to them. The dose may serve in clysters in the room of sal-prunellæ; you may make also an emetic wine, to be given in the draughts where such wine is mentioned as an ingredient. If you get four pounds, or four pounds and a half of liver of antimony from the whole, you are very well off.

How to make the crocus metallorum.

Crocus metallorum is made in the same manner as liver of antimony, the only difference is, that in the crocus the two ingredients (salt petre and antimony) are in equal quantities; it is proper for the same purpose, but the liver of antimony is the most salutary. The dose of the crocus is half an ounce morning and evening, given as before.

A clyster

A clyster for a looseness.

Take a gallon of emetic wine, and boil in it twenty or thirty acorns dried and powdered; when they are well boiled, let this composition stand till it is of a proper warmth to be administered; then add a quart of sweet oil to mollify the bowels; one clyster of this will not be sufficient, you must repeat it twice a day for two or three days running; you may also make a draught with a bottle of emetic wine, and a dozen of acorns in powder; two days after let him take an ounce of monk's rhubarb, otherwise called *raponti*, which will be as effectual as the true Eastern rhubarb.

Another for a horse that has taken a purge which has not worked.

Take leaves of marsh-mallows and common mallows, pellitory of the wall, or garden nightshade, or for want of both, lettuce or succory, or some of the cassia decoction sold by the apothecaries; you may boil any of these herbs with his bran, or mix the decoction with his bran and water, and having strained the whole, add two ounces of double catholicon, a quartern of sweet oil, and an ounce of *sal-prunellæ*. If this first clyster does not move the purge, repeat it five or six hours after, adding two ounces more of catholicon.

Another

Another refreshing clyster.

Take leaves of common mallows, marsh-mallows, pellitory of the wall, violets, lettuce, the herb mercury, of each two handfuls; aniseeds and fennel-seeds bruised, of each two ounces; boil the whole together in water, and then strain and give it the horse. After he has discharged it, take him out, and trot him till he begins to sweat, and then put him up in the stable, and cover him close, to prevent his catching cold. His sweat being over, if you are under the necessity of it, you may ride him ten or twelve miles the same day, but stop him a little between whiles, and at every place give him a mouthful of hay. If he eats it, you may conclude him out of danger. This clyster is good for the gripes, if you give a quart of it at a time, in the form of a draught.

Another.

If it be in the summer, you may make the following:

Take leaves of lettuce, purslain, and succory (or for want of that dandelion) groundsel, garden night-shade, betc, mallows, and marsh-mallows, of each an equal quantity; boil them well, and strain the decoction, and let each clyster consist of a gallon. You must dissolve in it two ounces of sal polychrest, an ounce of sal prunellæ, half a pound of honey, and add half a pound of sweet oil.

The whole being well mixed, if you have not a syringe large enough, make use of a bullock's bladder, with a joint of reed, or elder with the pith out, of about a foot long. Fill the bladder with a funnel, but before you inject the clyster, run your hand up the horse's fundament, and empty his great gut, taking care not to scratch him with your nails, which might prove mortal. If you cannot get the above-mentioned herbs, make a decoction of barley or rye flour, and add to it the other ingredients.

How to make the cordial and universal powder.

This powder may be kept as long as you please, provided you put it in a glass vessel, or a bladder, and let no moisture come near it. Every military farrier, who has the charge of a number of horses, ought to have it always by him, because it is good for almost all distempers. It is for this reason we call it the universal powder.

Prescription.

Take bay berries, juniper berries ripe, the seeds of fennel, anise, fenugreek, skirret, angelica root, gentian root, orris root, saffrafras wood, guaiacum wood, olibanum, agaric, monk's rhubarb, dried Seville orange-peel, lesser centaury, leaves and flowers of wormwood, galangals, long birthwort-root, and round birthwort-root, leaves of sage, and leaves of rue, dried in the shade, ground-ivy,
and

and wild tansey, of each a quarter of a pound; reduce them all to a powder separate, and then add flowers of sulphur and liquorice powder, of each half a pound; mix the whole together and pass it through the sieve; you may be certain, if the mixture be well made, that few remedies are equal to this powder; the dose for each time is, from three to four ounces, in water or beer, according to the strength of the horse, adding to every dose half an ounce of sal prunellæ. This powder may be given at all times, either in the morning or in the afternoon; and if you are obliged to continue a journey, you need apprehend no bad consequences from it, because it tends to fortify the horse.

Another remedy to fortify a horse that is ready to cast, or whose appetite is palled.

Take two or three ounces of Venice-treacle, an ounce of assa-fœtida, half an ounce of sal prunellæ in powder; dilute the whole in a quart of wine, if it be for a fat horse; if for a lean one, in a quart of good old beer. We have taken notice more than once, that a horse should be kept some hours entirely fasting both before and after taking any remedy; if you give this in the morning on a journey, and the horse is hungry in the afternoon, you may venture to ride him some miles farther in case of necessity, because the remedy

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gives

gives him no trouble. If you perceive no change in him at three or four hours end, repeat the dose; for a horse, on account of his prone posture, is very difficult to purge; he is also hard to vomit, because of the distance between his throat and his stomach; but then a vomit does not strain but only sharpens his appetite. This remedy is good when you merely suspect any disorder, and you never run any hazard in giving it.

How to dye the hair of a horse.

When you have a white horse or a horse with white spots, and you are willing to conceal them for some time, take a pound of lime, a pound of gold litharge, a quartern of Castile-sope cut small; put the whole in a large pot, and pour in rain-water, by little and little, till the lime heats and dissolves; then add more water and keep stirring it with a wooden ladle; when it comes to the consistence of a clear pap, apply it with art upon the hair, in the places you want to blacken; cover it with paper or a linen rag, and leave the horse tied up for some hours till it becomes dry; then wash the part with water and sope, and the more you wash it the blacker it will appear. This may be done in any part where the hair grows, except the nose, where the hair is very thin. You must take care
however,

however, that the composition does not come to the skin, for it would certainly fetch it off.

To paint the eye-brows of an old horse.

Take two ounces of aqua-fortis, dissolve in it half an ounce of leaf-silver, and add an ounce of rose-water; lay on this composition delicately with a pencil, on the eye-brows, and take great care that none of it gets into the eyes. If they are not stained the first time, you must repeat it as often as it dries, till it has the effect. If the horse be bay, you must put into the composition an ounce of umber; if sorrel, an ounce of litharge of gold.

To make hair grow again that is fallen off, whether through the itch, or a wound in what part soever it be.

Take ointment of poplar-buds and virgin-honey, an equal quantity of each; mix them well together, and rub with this twice every day the places that are bare; continue this for fifteen or twenty days, in which time the hair will grow again, as thick and smooth as if it had never fallen off.

Another way.

Take the roots of flat sedge, which grows upon the borders of standing waters, and having cleaned them

them well, boil them in water to a pappy consistence, and then add as much virgin-honey as you can conveniently mix with it. Put some of this composition fresh every day upon the bald places, and if you continue to do thus for fifteen or twenty days, you will see the hair return. We remember having used this preparation upon a young woman who had scarce any eye-brows. We had them shaved close twice a week, and rubbed the places well, and at the end of six weeks, she was hardly to be known, so large and beautiful were her eye-brows grown.

How to make what we call a star come on the forehead of a horse.

Take three leaden pencils, about the size of a goose-quill, and three or four inches long; then take a pointed iron instrument, of the shape of a shoe-maker's awl, and somewhat larger than the pencils. Run your instrument under the middle of the horse's forehead, between the flesh and the skin, bringing the point out at about five inches distance. Put one of the pencils into this hole, leaving both ends out. Make two more such holes, and cross the first in such a manner as to form a star, with six rays, and introduce the other two pencils as the first. After this, take a piece of woollen yarn, of the thickness of one of the pencils, and carry it under the ends of the pencils, turning

turning it round each, and so continuing till you have quite clogged up the said ends, and made a large circle of yarn. Fasten it with a knot or two, and turn back all the six points of lead, so as to keep it tight on. Leave the whole in this maner five days, and then take up the yarn, and pull out the pencils, and without any more trouble, a sort of impostume will form under the skin, that will make the hair fall off. There will then come a kind of crust, which will drop off of itself; after which, you must grease the part with a little mixture of honey and lard, in equal quantities. All the hair which grows after this, will be white and smooth.

There are many other recipes to make the hair white, but we ought always to imitate nature, the most nearly which, is done in the manner we have set down.

How to fill up the hollow places over the horse's eyes.

Take clean barley and vetches bruised, in equal quantities, and boil them in rose-water to a pappy consistency; with this fill the cavities every day (that come over a horse's eyes) and tie it on with a bandage made on purpose. Continue the use of this for three weeks or a month, and the cavities will fill up as if they had never been.

Remedies for figs in a horse's feet.

Pare the foot well where you discover a fig, that with your bistory you may the more easily cut the sole round the place where the complaint is, till you come to the raw flesh, which is going to the root of the disorder. If you regard only the top of the fig, your cure will be imperfect, for the fig will spread and extend, and though it appears small on the outside, it will reach all over the sole. We do not think that it grows to the tendon, or the innerfoot. Having thus discovered it all, take two pounds of honey, a pint of aqua vitæ, six ounces of verdegris, in fine powder, and sifted through silk; six ounces of white copperas, pounded fine; four ounces of litharge, and two drachms of sublimate, pounded in the same manner, and well sifted; mix the whole with honey in a clean earthen pot, and let it stand over a gentle fire, stirring it often till it is sufficiently thick. The ointment being made, spread it upon pledgets, which apply to the fig.

If in searching for the roots, you make the blood come, which should be avoided as much as possible, put for the first dressing, a restraining made with turpentine and chimney-foot; apply this warm all over the fig; cover it with tow, and bind and splinter it down, to stop the blood.

Thus

Thus, in two days' time, when you take off the dressing, you will find all in good order; afterwards put on a dressing of the ointment above described, cold, with pledgets of tow, well banded and splintered on; let the whole dressing be so ordered with hard rolls of tow, that the tents you clap on the sides, may press in the fig, and prevent its enlarging. Leave not the least corner of the frog that touches the fig, without rolls of tow, that the whole may be kept under, and nothing grow beyond bounds.

Observe that the tow you make use of be very dry, and the pledgets and tents be made up hard before you spread the ointment on them. Take care also, that your horse be in a good stable, or some other dry place, because moisture is so hurtful in this disease, that it may hinder a cure. Having taken off the second dressing, which should continue forty-eight hours, cleanse the part well with dry tow, and examine if there be no fibres or roots remaining; then wash your fig with what the goldsmiths call second water, putting over it the ointment we have here prescribed. Bind and splinter the place well as before, upon clean dry tow, keeping in the sides with the rolls and pledgets, that it may not enlarge. A great part of the cure of this disorder depends upon the good or bad application of the dressing.

When you change the dressings, take off gently with your spatula the small eschars, or rather skins, that the ointment has occasioned, observing to fetch blood as little as possible. If, after the second application of the ointment, the fig is not checked, but breaks out again, mix with one half of your composition, three ounces of good aqua-fortis, putting them cold together, and letting them ferment. Afterwards use this ointment as you did the former, and it will certainly stop the progress of the fig, if you take care to renew and bind on the dressing well every twelve hours. When upon taking off your dressing, you perceive the fig sufficiently deadened, return again to your former ointment, without aqua-fortis, applying that with it between whiles, as you see occasion, to eat off the exuberant flesh, or to dry up the wound apace. If you do all this with judgement and discretion, it cannot fail of success.

There are often places where the flesh grows too hard; there you must use the ointment with aqua-fortis. When you want to dry only, the simple ointment is usually sufficient; but always support the dressing well, and splinter it down tight.

When the fig grows to the tendon, or inner foot, or has communication with them, when you imagine it healed on one side it spreads on the other, and extends sometimes from the frog to the quarter

quarter, which it is often necessary to cut. When the quarter is cut, caustics, or potential cauteries, in powder or in ointment, may serve to destroy the tendon. You may make use of the same that was prescribed for the horny javerts, for without destroying the tendon, you can never cure the fig.

If the fig be large (as there are some as large as a small pullet's egg) it is very proper, after having well examined all round, to see if there be no void under the sole, where certain roots of the fig are concealed, and after having cut and discovered all you can with your two-edged crooked incision-knife, it is very proper, we say, to take a good sharp buttress, and cut off all the fig, and all the corrupted and bad flesh you can see. Let your horse afterwards bleed well, and then let the sponges of his shoe be lengthened, and his pastern tied with a cord, in order to stop the blood. Then cover all that you have cut with fine salt, and put over it turpentine, that has been mixed over a fire with suet chopped small. You must soak a towel in this, and lay it on; if the blood comes so freely that you cannot put on the salt, mix it with the hot composition, bind the foot well, and splinter on the dressing. Put the same defensive round the crown, and leave your horse for three days without touching him, keeping him always in a dry place.

If the fig is in one of the hind-feet, as it commonly is, you must take great care to keep the dung from under it, that no moisture may come to the part, because moisture is very hurtful.

When you take off the dressing you must gently cleanse the hole, with dry tow upon your spatula ; then put on some of the ointment with pledgets, and let the hole be adjusted and compressed with an iron splinter. You will have no more occasion for any defensive round the crown. Two days after, when you take off the dressing, you must observe the colour of the flesh, and wash it with a second water, as there may be occasion. If you want to eat off any flesh, have recourse to your ointment with aqua-fortis, and continue the same dressing for some days ; upon those places where the flesh looks well, put only the simple ointment.

If the fig grows to the tendon or the inner foot, the most certain remedy is, to unsole the horse and then dress the fig in the manner prescribed, making use of the razor when you see occasion, or eating off the tendon with caustics ; but wherever you can employ the razor ; let the caustic alone, because with the former you see best what you do, and may go just as far as you please, without putting the horse to so much pain ; if there be any splinter loose from the inner-foot, apply the searing-iron to it rather than a caustic.

Madam

Madam Feuillet's green balm.

This has performed such great cures upon mankind, that we thought it worthy of a place in the present work; we have not set down here the prescription for the styptic plaster that is used with this balm, because the diapalma, that may be had anywhere, is as good for it as the said plaster, and much cheaper. It is not the plaster but the balm that effects the cure, the other serves only to keep it on, and prevent the air from hurting the wound.

This balm is very good for all wounds in horses, in what part soever they happen, as also for pricks in the foot, and the like. It is made thus :

Take oils of linseed, olives, and juniper-berries, of each two ounces ; Chio-turpentine, or for want of that, other fine turpentine, two ounces ; oil of bays, one ounce ; oil of gillyflowers, one drachm ; verdegris, pounded and finely sifted, three drachms ; white-copperas, two drachms ; put the whole into a phial, and shake them till they incorporate, continuing so to do from time to time for a month ; after which keep it for use.

You must wash the wound with warm wine, the first time that you dress it ; then heat the balm and spread it upon lint, over which put a sticking-plaster to keep it on ; if the wound be
deep

deep you must cover a tent with this balm, and put a plaster over it.

You must use it, as an unguent, warm to fresh wounds, having first cleansed them well with tow; sprinkle over it, when thus applied, the lint of old cord that has been beat almost to a powder, and if you continue this every day, without ever moistening the wound, it will heal in any part whatsoever; it is equally good for all pricks, whether with nails, thorns, or stumps of trees.

Gunshot-water, or a vulnerary draught.

Horses that are wounded with a fusée, musket, or pistol, cannot always be treated with large incisions, especially in hot weather in the army, where there are not always convenient places to put them out of the sun, or to protect them from flies.

To find the bottom of these wounds and know their magnitude, you must search them with a large iron probe, which is the only way you can do it. For this purpose, you must place them in the same posture they were in when they received the shot; the wound often appears to be so deep, that you can convey neither ointment nor powder to the bottom of it. For this reason liquids, have been invented under the name of gunshot-waters, which are injected into the wounds several times a day. You must introduce a tent dipped in
in

in it to keep the wound open, and apply a linen-rag dipped likewise over the mouth of it, in the most convenient manner you can. Give the horse half a pint of the same water every day in a draught; and in this manner wounds may be cured, which would otherwise prove mortal; not but that a great number, thus treated, do notwithstanding die; but when a man has done all in his power, he bears his loss with the less regret, because it was inevitable.

If the horse has a fever, you must have recourse to clysters, and not let him swallow any of the vulnerary-water, because the simples that compose it are most of them hot, and would tend to increase the internal fire and the agitation of the humours, which naturally press towards the wounded part; but we very often see horses that have very large wounds, without any fever. It is not the same with men, for whom the use of vulnerary-waters are almost abolished, except among the Swiss, who have still a very good opinion of them.

How to make a gunshot-water.

Take a new earthen pot, well glazed, in which put three quarts of small white-wine, with an ounce and a half of round birthwort, rasped; put your pot over a moderate fire and let it boil gently or rather stew, till one quart of the wine is diminished;

nished; just before you take it off, put in six ounces of sugar in powder, and when that is dissolved, set it by to cool. Use this water or rather this wine, to wash or syringe the wound thrice a day; and every morning, as we said, let the horse drink half a pint of it, after you have strained it well.

Lapis mirabilis.

This stone is as admirable for its good effects, as it is in its name; to compose it, take white-copperas, two pounds; roch-alum, three pounds; Armenian-bole, half a pound; litharge of gold or silver, two ounces; powder the whole, put it in a glazed earthen pot, and pour upon it three quarts of water; then let it boil gently over a moderate fire, without flame, till the water is quite evaporated. Let the fire be equal all round the pot; you will see a sediment at the bottom, and when that is entirely dry, take the pot off the fire and let it cool. This matter ought, when cold, to be very hard, and it will grow harder and harder the longer you keep it.

The dose of this stone is half an ounce, which you must put into four ounces of water; in a quarter of an hour it will dissolve, and then if you shake it in a phial, the water will look as white as milk;

milk; moisten with this the eyes of a horse, morning and evening.

A remedy for sprains.

Take pitch and tar, such as are used for ships or carts, a pound; aqua-vitæ, a pint; boil them together over a charcoal fire, lest any flame should touch them, stirring them often for a quarter of an hour; then add two ounces of fine bole, in powder; and thicken the whole with flour; put this warm upon tow, and apply it all round the footlock, binding it on; renew it every two days, and there is scarce any sprain that will not be well in three or four applications, provided you dress the part first with the essence of turpentine; the only inconvenience of this remedy is, that it tarnishes and reddens white or grey hair, and the stain appears for some time after; however, the remedy is excellent, and in black horses has no ill effect. It is admirable also for blows and swellings in the knees and hams; but in these cases you must use no essence of turpentine. What makes this remedy the more to be preferred is, that though equally good with any, it costs but a trifle.

A solutive cataplasm, or pultice for swelled testicles.

Boil beans in leys of wine, the thinnest you can get, till they become soft; then pound them, and

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make them into a paste; add to two pounds of this paste an ounce of castor in powder, mix the whole well and put it into a linen bag, capable of containing the testicles. You must first grease them well with ointment or oil of roses, and then put them into the bag, while the pultice is as hot as you can bear it upon the back of your hand; tie it on in the most convenient manner you can, and every twenty-four hours repeat the unction and heat the bag in the leys, made hot, which must be kept for that purpose; continue to proceed thus till the swelling dissipates.

Purging-paste for colds.

Take hepatic-aloes, in powder, four ounces; ginger, three ounces and a half; sal nitre, purified, five ounces, with an equal quantity of honey and sweet oil; and make the whole into a soft paste.

The dose of it, as an alterative, is half an ounce made into a ball, to be given night and morning, which should only keep the body of the horse regularly open; but by no means to purge him as a common dose of physic.

The full dose of this paste, in colds, after bleeding your horse, is two ounces; and if for a strong coach or cart horse, two ounces and a half of

of it. During the operation warm mashes must be given.

The best way to keep the paste is, to put it into an earthen jar, and cork it down tight; if it gets hard, beat it up again with more oil and honey.

For a fever or cold, when a horse shakes as in an ague.

Instead of this being an inflammatory fever, as mentioned in Watson's Farriery, it is an intermitting fever, and should be treated in the following manner :

Fever paste.

Take galangal and gentian-roots, in powder, of each twelve ounces ; testaceous powder comp. ten ounces ; emetic tartar, levigated, six drachms ; grind them well together in a large mortar, then with a sufficient quantity of any syrup and sweet-oil, make them into a soft paste, which keep in an earthen pot for use.

The dose of this febrifuge is an ounce two or three times every day, till the horse recovers ; warm mashes may be given him, but no cold water.

This remedy exceeds every quack fever-powder whatever ; and may be given in inward com-

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plaints, where the farrier cannot immediately account for a horse's sickness and lameness.

Powder for fevers.

Take of the best Hungarian antimony, in powder, eight ounces; shavings of hartshorn, the same quantity; put them into a crucible, then place it in a furnace, and raise the heat by degrees, till the fire is very fierce, and the powder becomes as white as possible; after which take it out and cool it gradually. In all fevers first bleed; then administer half an ounce of the powder, in any form you please, three times every day, keep him warm, and give him warm mashes and gentle exercise.

Another fever powder.

Take two ounces and a half of calcined antimony, to which add one drachm of emetic tartar, levigated, mix them very well in a mortar for use; dose the same as the former.

Common purge.

Barbadoes-aloes, in powder, ten drachms; mercurius dulcis, prepared, two drachms; sal polychrest, one ounce; galangal-root, in powder, half an ounce; oil of aniseed, one drachm and a half; with a sufficient quantity of any syrup make two balls, and give them the horse in the evening, keeping him from his hay. In the morning

morning give him plentifully of warm mashes with gentle exercise.

A comfortable stomach cordial.

Take senna and jalap, in powder, of each two pounds; raspings of gum-guaiacum, one pound; aniseed and grains of Paradise, pounded, of each half a pound; pearl-ash, six ounces; Spanish-liquorice, sliced, one pound; spirit of wine, rectified, six gallons; digest all together in a warm place, eight days, and when strained it is fit for use.

In colics and violent pains in the bowels, nothing can be better contrived; half a pint is a full dose, night and morning, till the horse recovers.



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A STUD should be fixed upon dry ground, for the more dry and brittle the grafs is, the more light, slender, and sound, the horses that eat it will grow ; whereas those who feed on very juicy grafs, are usually very thick and clumsy in the head, the neck, and even the whole body, and such grafs grows only in moist and watery places; besides, the hoofs thereby being too much moistened, become gross and heavy, so that when you raise a race of colts out of fine horses and mares, if you breed them up in humid lands, their slender legs are unable to bear the weight of a great head, a thick neck, a gross body, and to lift hoofs that are too large and heavy; all which defects are caused by an overabundance of juice in the grafs. A dry soil, therefore, is absolutely necessary for the seat of a stud, because the grafs there being more whole-
some

some, it makes the colts sounder, more vigorous, light, and courageous, which are all the good qualities we can wish for in a horse. The stud being situated in such a place, must be governed in the following manner:

First, You must always keep the place clean to which the colts retire, and change the litter in it at least twice a month in winter, and four times in summer.

Second, Take care when you perceive any mares to grow heavy, to separate them from others that are not with foal, because the latter being more light and wanton, may kick the big ones, and make them cast their foals.

Third, Those mares that have cast their foals, should be expelled the stud, as improper for breeding, because were they afterwards to produce a foal, it would be of little value.

Fourth, When a mare has been kept three years in a stud without producing a foal, it is obstinacy to keep her there any longer, for though she should give you one the fourth year, you run a great hazard of waiting a long time for a second, and the colt that she produces, will never be worth one quarter of the expence that the mare will put you to.

Fifth, You must not put colts of one year old into the same inclosures with those of two, three, or four years, because the latter being much stronger

stronger, will kick the others, and hinder them from feeding, which must spoil their growth.

Sixth, You must not let stone-colts of a year old, run with mares of the same age, nor with any other mare-colts whatsoever. They begin to have some sensation at that age, and what by their play and their feeding with those young females, they pall their appetites, and sometimes ruin and destroy themselves. To avoid this inconvenience, mares of two years old should be put with their dams, and the males of two, with those of three or four.

Seventh, Neither must stone-colts be suffered to come near grown mares, in what season soever it may be, for this would certainly do them harm, and in covering-time make them shed their seed, how gentle soever they might be.

Eighth, Never take a colt from grass till he is three years and a half old, nor begin to mount him till he is five, which is the way to make him long serviceable.

Ninth, It would be very proper to have two large inclosures, one to put the mares in when they foal, that they may be at rest, leaving them together till they have all foaled, and the other to contain the rest of the stud, that they may not mingle with the stone-colts, because there is more to be apprehended then, than at any other season, as well on the colts' account, as on that of the mares.

Tenth,

Tenth, These parks are very convenient to lodge the steeds in at night, in the separate divisions. They feed there in summer, more at ease by night than by day; not being incommoded either by heat or the flies.

Eleventh, In order to know if all the mares that were covered have conceived; and if there are not some of them that still want the horse, you must bring out a stallion that neighs much, and lead him within pistol-shot of the mares, holding him tight, that he does not get from you. All those mares which surround the stallion, give you notice that they are yet in lust. But as there are some mares who will take horse after they have retained, the most short and easy way of knowing the truth is, to pour water into their ears; for if they shake it out violently in a moment, it is a mark they have not conceived. You must then lead them to other horses, and in the moment the stallion has done his office, let the mare be bled in her jugular vein.

Twelve, It is a very good method to have your mares covered about the middle of March, that if they do not retain, you may have time to get them covered again; for when the month of May is once over, the season is no longer proper for that business, because in order to make a colt vigorous, he should have two summers for one winter, which cannot be, if the mare foals in the

latter season, but the colt on the contrary, will be weak and languid, through the hardships he suffers the first year.

Thirteen, If the mare brings forth her foal with difficulty, you ought to assist her, giving her good sweet oil, and flowers of sulphur, and sometimes to strengthen her, venice-treacle in wine, or a dose of good cordial balls, which no man who pretends to manage a stud, should ever be without, it being of continual use, as well for colts as for mares and stallions.

Fourteen, You should take care to get your mares covered again in a fortnight at farthest, after they have foaled, because if you neglect it longer, the beauty of the season for that end will be over.

How to couple stallions with mares, in order to make them bring forth well-proportioned foals.

Among the foreign stallions, some will get smaller foals, and some larger. You ought to put them to mares more or less corpulent, that the foals may be brought forth in good proportion.

A Barbary, Arabian, or Turkish stallion, to be a good one, should be tall, very slender, very high before, young, and without any defects. As the colts they get are usually larger than themselves, but extremely slender, you must give them
mares

mares that have capacity enough, and are very thick in their bodies. The English mares are the best for this purpose, for the Italian ones produce feeble foals that cannot be depended on. The Barbary mares cannot nourish their foals in France; the English, therefore, are preferable to all others.

An English stallion to be a good one, should be strong, thick, and every way well set, because the colt he gets is usually smaller, and less vigorous than himself.

The Spanish stallions seem not to be so useful in France, as those of other countries. But if a man has a mind to breed from them, he should chuse those that are very strong, and well proportioned.

As for beauty and spirit, they never want those qualifications. Though we have mentioned no horses for stallions but Barbs, Arabians, Turks, and those of England and Spain, it does not follow from thence, that others are to be rejected, or that you may not get from them colts that are both handsome and good. But the former being sprightly, delicate, and courageous, they get foals of a much more noble and lofty stature, and consequently better for persons of quality. As to French mares, who are descended from horses of reputation, such as the stallions we have just mentioned, those that are the highest before, are

the best. You may find a mare that is very handsome to the eye, but will never produce a colt of any value, because she was got by a worthless horse; not but that the colt may at first appear handsome and well made, but the larger he grows, the worse he will look. Whereas a mare of good descent, will bring forth a colt that does not at first appear so beautiful, but which grows every day in beauty, as well as in stature. Take great care therefore, that your mare be of a good race, because this is a matter of great importance.

The stallions, as well as the mares, should be without any defect, that is, their sight should not be impaired; they should not be low in their reins, nor have their legs spoiled by curbs, vefignons, or spavins. In a word, let them be sound all over their bodies, lest their offspring partake of their infirmities, for many times these distempers are hereditary in horses.

It is necessary, likewise, that neither the horse nor the mare should have strained themselves. This is what people call regard; but on the contrary, when they have a good stone-horse, they make a slave of him till they have worn him out, and then his last service is to be kept for a stallion; as if it was sufficient that a horse has been once good, to make the colts he gets afterwards, strong and vigorous. We cannot imagine what
reason

reason they can assign why a horse entirely worn out, and consequently without strength, should be able to get a vigorous foal. Doubtless this is impossible in nature, for we believe that the most certain means to have good and sprightly foals, is to look out for, and procure at any price whatsoever, a stone-horse that is strong, handsome, well made, and without defect, one that has never been rode ; but in order to break him, you should be informed of his qualities and share of spirits, and let him have a mare equally well conditioned. A stallion of this kind may get good foals, even at twenty-five years of age, which no horse can do that has been worn out with labour.

In order that a mare should produce good foals, let her not be covered till she is four years of age, and take her out of the stud in her 16th or 17th year. A stud regulated in this manner, will produce the finest horses in the world, by only observing the proper seasons to have the mares covered, that their foals may have two summers for one winter.

A mare goes with foal eleven or twelve months, or some days, more or less, for there is no certain time ; and the older she is, the longer she carries her burthen. Some persons amuse themselves with reckoning the years of a mare, to determine from thence, the day of her foaling, but this is very uncertain, and only an imaginary piece of knowledge. Such is the folly of many other people,

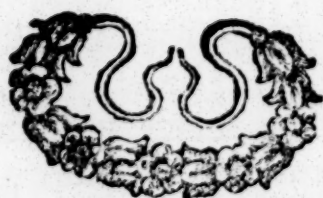
ple, that they pretend the state of the weather, when a horse covers a mare, contributes much to the goodness or badness of the colt. Thus if it be rainy, windy, or stormy, in the moment that the mare conceives, the colt will be vicious, but that on the contrary, he will be very docile if the air is then clear and serene.

It is however certain, in spite of all that such people say, that a horse produced between a mare and a stallion, which are both perfect, will always be good, well shaped, and vigorous, if he be got in the right season; for this, joined to the manner of bringing him up, is the only thing that can contribute to his perfection. You must assist your mare in the feeding of her foal, by giving him provender, as bran, with wheat or oats cracked in the mill, and mixed among it.

A colt sucks for six or seven months. When you take him from under his dam, you must feed him morning and evening with oats wetted, and bran, during the winter season. In the spring you must take him off gradually from this diet, till the grass grows hard and high, for if you let him eat the tender sprouting grass, it may loosen his belly too much, and weaken him, and at last, perhaps, kill him. You should treat him thus from year to year, till he is four years old, taking great care not to let any whole grain come in his way; for as the muscles of his jaws are yet very
tender,

tender, he may, in striving to chew, bring down defluxions on his eyes, to his great prejudice.

A stone-colt that is well shaped, may at four years of age be suffered to cover mares, if you are sure he never received any hurt before. He might even serve for this office at three years old, but as he is not then quite at full growth, it is better to wait till he is four, when there will be a greater chance of his getting a colt that may be good for something.



I N S T R U C T I O N S

F O R

C O M M I S S I O N E R S,

WHO GO TO BUY HORSES IN FOREIGN COUNTRIES,

IN ORDER TO MAKE THEM ACQUAINTED WITH
THEIR DEFECTS.

THE Persian horses are very good and vigorous, but they are subject to have high and close heels, and also liable to incastellations; they are very good to breed from.

The Arabian horses are also very good, but are apt to have large feet; they are also good stallions.

The Tartary horses are of a middling stature, and have good feet like mules.

The Barbary horses have delicate feet, and are subject to the chilling of the shoulders; their breed is admirable, when you can get a full-sized horse, and for the generality very good.

The

The Polish horses are small and hang down their heads ; they will do good service, but eat a vast deal.

The Croatian horses are much like mules, and have good feet.

The Hungarian horses are good courfers ; they have good feet, but are with difficulty held in, and carry the nose almost always poking forwards.

The Swedish horses are liable to the malanders and transverse mules.

The Neapolitan horses are vigorous and good courfers, subject to have weak feet, to be restive, malignant, and treacherous.

The Spanish horses are fiery and good for every thing, especially for war, and the manage ; they are subject to dry spavins.

The Danish horses are very serviceable, but good for nothing till they are six or seven years old ; they are subject to bleymes and defects in the fight.

The Italian horses are good courfers ; subject to bleymes and bone spavins, to be restive and malignant.

The German horses are strong, fit for the saddle and the coach ; but subject to javarts and watery legs.

The Swiss horses are good for draught, and for the train of artillery; but liable to defects of sight, which they seldom have very clear; they have much hair on their legs.

The Dutch and Frizeland horses are good for the coach; are tall and fat, but subject to have flat feet, curbs in the houghs, vessignons, greasy-spavins, and ox-spavins.

The Flemish horses have large heads, and much hair on their legs; are subject to grapes round the hoof, to figs in the frush, and be full of humours in their legs.

The Norman horses are excellent, and good for the chase; they have good feet, and some of them are fit for the coach; many of them are subject to distempers in the eyes.

The horses of Brittany are not fit for service till they are five or six years old; they have heavy heads, a cloudy sight, and much hair on their legs.

The Poitevin horses have large heads, are subject to be moon-eyed, have much hair on their legs, and wide open feet.

The Limosin horses are very good, are fit for the chase, have good feet, and good sight; some of them are no ways inferior to the English horses

in

in any thing, which are, however, in general, indisputably the best horses in the universe.

The English horses are good, easy to ride, and excellent for the chase ; but subject to bleymes and scams, and to have flat and close heels.



T O
P R E S E R V E A N D R E S T O R E
A S T A B L E I N F E C T E D
B Y
T H E D I F F E R E N T M A L A D I E S O F H O R S E S .

FIRST, when a stable is spoiled by having had in it glandery horses, you must begin by unpaving it, then take away at least half a foot of earth or sand, because the urine that is soaked in it, may infect the air, and in the place of what you take away, put fresh earth or sand.

If the wood of the rack, manger, pillars, and bars, is not very old, and the infection has not been of long standing, it will be sufficient to scrape them well, and wash them with hot water.

When the whole is dry, take pot-ash and dissolve it in boiling water, with which wash them a second time; you may dissolve what quantity of it you please, in proportion to the size of the stable, but the medium is, a pound of pot-ash to a common pail of water.

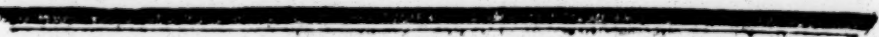
When

When the whole has been well scoured with this ley, take olibanum, and the root of Bohemian angelica, of each a like quantity, bruise them coarsely together; and take three or four pots or chaffing dishes, according to the magnitude of the stable, and put in them lighted charcoal; then shut up all the windows and doors, and put some of this composition upon each fire, where it will smoke very much.

Get out of the stable and shut the door close after you; and thus leave the stable close stopped up for twenty four hours, in which time it will be purified.

When you have opened the doors and windows long enough to let out the smoke, and let in the fresh air, you may put in it any horse with safety; but if the distemper be any thing less than the glanders, there is no occasion for taking up the pavement, because the wash and the fumigation, will of themselves be sufficient. If the wood of the rack or manger be old and rotten, you must take them down and put up new, especially after the glanders.

T H E



T H E
A N C I E N T M E T H O D
O F
P R E P A R I N G R U N N I N G - H O R S E S .

A Running-horse should be somewhat long bodied, of great mettle, good wind, good appetite, very swift, and sensible of the spurs. He should be of an English breed, or a Barb of a little size, with pretty small legs ; but the back finews at a good distance from the bone, short jointed and neat, well-shaped feet, for large feet are not at all for this employment.

To prepare him for a race, give him neither hay nor oats, but bread made of half barley and half beans, baked in large and thick cakes; let them be rather stale than new ; three pounds at noon and three pounds at night is sufficient in twenty-four hours. Instead of hay give him wheat-sheaves, unthreshed, with the ears upon them ; let his drink be luke-warm, mixed with a handful or two of bean and barley meal ; cover him well in a stable

ble, without light, and let him be well littered and kept warm night and day. On the fifth day in the morning, after he has stood three hours on the bridle, take a pound of fresh butter before it be washed or salted, and mixing with it twenty-five or thirty cloves of bruized garlic, make your horse swallow it in balls, as big as large walnuts, with a quart of white-wine, keeping him afterwards with his head tied up in the bridle, pretty high, for three hours; then feed him as before with bread, warm-water, and wheat-sheaves, but moderately of the last; because you are not to fatten him, but on the contrary, by diminishing and hardening his flesh, to increase his wind and vigour.

On the seventh day air him abroad for the space of an hour, just after sun-rising; and as much at night before sun-set; sometimes racking or stepping, and sometimes galloping him. If he continue too fat, then do the same before sun-rising and after sun-set; then bring him back, rub and cover him well, and feed him as usual; continue to air and exercise him every day, giving him every fifth day his pound of butter, made up with garlic into balls; but you are to observe not to air or take him abroad on the day that he takes his balls, nor the day following:

When

When he has taken three doses of these garlic-balls, that is, fifteen days after you first began to put him in keeping, you are to exercise him for two hours in a morning and as much at night; sometimes on full speed, then at a good gallop, and afterwards at a step, that he may recover his wind; remembering, as before mentioned, not to air him on the day he takes his balls, nor on the day after; but on the other days, when you have galloped him hard, dismount and lead him home, well covered, then rubbing and wiping him all over until he be perfectly dry, let him stand upon his bridle, with his head tied up for three hours, then give him his water somewhat more than lukewarm, and feed him as before; and thus you are to order him for a month, giving him his garlic-balls every fifth day; but on the last five or six days of the month, you are to run and gallop him as sharply as his wind will allow him, giving him listenings now and then in his running to take his wind. Let his exercise be for two hours in the morning, and as much at night; leading him always back to the stable in your hand, having first well covered him, and then rubbing and drying him, give him his water and meat as before directed.

If,

CLASSICAL FARRIER.

If, after all this, his dung be still slimy and viscous, it shews that he is not as yet prepared; you must therefore continue his balls and exercise until his dung comes from him pretty dry, and without humidity.

Two nights before the match, he should be put in the muzzle all night, and about two in the morning, give him three pints of sack, wherein twenty or twenty-five new-laid eggs are beaten, then tie him up to the rack two hours, after which mount him, and put him to a gentle gallop, then to a full speed, as long as his wind will allow it; afterwards to a gallop again, to give him wind, and thus you are to exercise him three hours, then cover him, lead him home in your hand, and rubbing and drying him as usual, tie him up with the bridle to the rack, for three hours; then give him his water, but it must now be as hot as he can drink it, and then feed him as formerly.

On the day of the match, give him his former quantity of sack, and yolks of eggs, well beaten together two hours before he is to run; and he must be also tied up to the rack six hours before you give him his sack; and on that day and the preceding, he is to eat but half his allowance of bread at each meal, and but half the wheat-sheaves you were accustomed to give him.

Upon the days your horse is not to run, you are to feed and exercise him as before mentioned;

but if you find him exactly prepared, then give him garlic-balls every ninth day only.

If in the time of his dieting, or afterwards, the horse should disgust, or become costive, give him good clysters, made of two quarts of milk, and a pint of sallad oil, the whole being well mixed, and luke-warm.

These kinds of horses are never to be rode but with very small snaffles, for fear of hindering their breathing and wind, which one of our large bits would certainly do. The rider must lean a little forward, to prevent the wind taking too much hold upon his body; a cap instead of a hat; very small and sharp spurs; and he is to spur near to the flank, with little strokes, because strong and great strokes rather hinder than augment his speed.

The method here set down by Monsieur Sollyfel, concludes the first part of his book; but he having never made trial of it himself (his countrymen being generally great strangers to this diversion) he gives it only upon the recommendation of an English jockey. We thought, therefore, it would not be amiss, that since he differs so much from the manner of preparing race-horses used at this time, to subjoin the modern way of preparing horses for a course collected from the best authors who have treated on this subject.

THE

THE
MODERN WAY
OF
PREPARING RUNNING - HORSES.

A HORSE designed for racing, should be tractable, and no ways restive or skittish; his head should be small and slender, with large nostrils, and a large thropple. Let him have also a pretty large reach, and good feet. His age should be six years at least, no horse under that age having sufficient strength for a four-mile course, without running the hazard of being overstrained.

The next thing to be considered, is the limitation of time for preparing a horse for a match; and it is generally agreed by judicious horsemen, that (unless the match be for an extraordinary sum) two months are sufficient. But herein you are to have regard to the state of your horse's body.

As first, If he be very fat, foul, or taken from grafs.

Secondly, If he be extremely lean and poor.

Thirdly, If he be in good case, and hath moderate exercise.

For the first, you must take two months at least to bring him into order, for he will require much airing, great carefulness in heating, and discretion in scouring.

For the second that is very poor, get as long time as you can, and let his airings be moderate, and not before or after sun, feeding him liberally, but not so as to cloy him.

For the third, a month or six weeks may be sufficient.

In the next place, you must consider his particular constitution, as if he be fat or foul, yet of a free and wasting nature, apt quickly to consume and lose his flesh, in this case, you must not have too strict a hand, neither can he endure so violent exercise as if he was of an hardy disposition, and would feed and be fat upon all meats and exercise,

Again, if he be in extreme poverty, and yet by nature very hardy, and apt soon to recover his flesh, and long to hold it, then by no means should you have so liberal and tender a hand, nor forbear that exercise which you would use to a horse

horse of a tender constitution, weak stomach, and free spirit.

The first fortnight's feeding of a horse that is fat, foul, or newly taken from grass.

As soon as his body is emptied, and the grass voided, which will be within three or four days at most, you should every morning, at break of day, put on his bridle, being first washed in ale or beer, and after you have dressed him, cover according to the season of the year; then clap on his saddle, and brace the foremost girth pretty strait, and the other somewhat slack, and wisp him on each side of his heart with pretty soft wisps between the two girths, that both of them may be of equal straitness, then put before his breast a warm breast-cloth, and let it cover both his shoulders; then (if you have taken no tobacco) squirt a little ale or beer out of your mouth into the horse's, leaving somebody to trim up the stable in your absence; for your horse must always stand upon plenty of dry litter night and day; and it must be either wheat or oat straw, for barley and rye straw are unwholesome, the first causing heart-burning, the last scouring.

When you are mounted, walk him a foot pace, which we call racking, for a mile or two (for you must neither amble nor trot, because they are both prejudicial to speed) upon smooth and equal ground,

ground, and if it has a gentle rising, so much the better. Then gallop him gently, and afterwards walk him softly, that so he may cool as much one way as he warms another; and when you have thus exercised him a pretty space, and the sun is newly risen, rack him down to some fresh river, or clear pond, and there let him drink at his pleasure.

After he hath drank, bring him gently out of the water, and rack him away very easily, and not as ignorant grooms do, who, as soon as a horse comes out of the water, force him into a gallop, which either teaches him to run away with you as soon as he is watered, or makes him refuse to drink, fearing the violence of his exercise that is to follow.

When you have thus walked him a little calmly, put him into a gentle gallop, and exercise him moderately, as you did before; then walk him a little space, after which, offer him more water; if he drinks, then gently gallop him again; if he refuses, then gallop him to occasion thirst, and thus always give him exercise both before and after water.

When you think he hath drank sufficiently, bring him home gently, without a wet hair, or the least sweat upon him; and when you are come to the stable door, provoke him to urine if you can, by stirring up some of the litter which is at the door, under him. If he does not stale at
first

first it is no matter, as a little custom will bring him to it. It is good for his health, and will keep the stable clean.

This done, tie his head up to the rack in his bridle, then rub down his legs with hard wisps, as strongly as you can; loose his breast-cloth, and rub his head, neck, and breast, with a dry cloth; then take off his saddle, and rub him all over, especially his back, where the saddle stood; then, cloathing him according to the season, girth on his fursingle, and stop it with small and soft wisps, which will make it the easier. Stop his feet with cow dung, or his own dung a little moistened with fresh water, then throw into the rack a little bundle of hay, well dusted, and wrapped hard together, and let him eat it standing upon his bridle. When he hath stood so an hour, take it off, and rub his head and neck well with a hempen or hair cloth; then drawing his bridle, make clean the manger, and put a quart of sweet, dry, old, and clean-dressed oats, into a sieve that will keep the good and full, and let the light oats go through it; and if he eats them with a good appetite, let him have again the same quantity, and so let him rest till eleven o'clock, with the windows close, for the darker you keep him the better, because it will make him lie down and take his rest, which otherwise he would not

so readily do. At eleven o'clock rub his head and neck as before, and give him another quart of oats, after which leave him in the dark stable for an afternoon, at which time rub and feed him as before, giving him another small bundle of hay, and leave him dark till watering time.

Watering time being come, dress him as in the morning, then clothe, saddle, and lead him forth, and urge him to empty; then mounting him, rack him abroad, but not to rising ground as in the morning, if you can find other that is plain and level, and there air him in all points as you did in the morning, galloping him gently before and after his water, rack him home to the stable door, and in your way let him smell upon every old and new dung you meet with, to provoke him to empty. Being alighted, do as you did in the morning, both without doors and within, and so let him rest till nine at night.

At nine, rub down his legs well with wisps, and his head and neck with a clean cloth; then turning up his clothes, rub all his hinder parts; give him a quart of sifted oats, a small hard bundle of hay, toss up his litter, and leave him till next morning.

Thus you shall keep him constantly for the first fortnight, which will so take away his foulness and harden his flesh, that the next fortnight, you may venture to give him some gentle heats. It may

be

be objected that many horses that have good appetites, would be half-starved, or become very weak, if they were scanted to a quart of oats at a meal; to this we answer, that we do not set down this proportion as an infallible rule, having told you that if he eats it with a good stomach, you may give him another, leaving the proportion to your own judgment and discretion:

The second fortnight's feeding.

In this fortnight you shall do all things as in the first, only before you put on his bridle, you should give him a quart or better of clean-sifted oats; then bridle, dress, clothe; saddle, air, water, exercise, and bring him home, as in the first fortnight; only you should now put no hay into his rack, but give it him out of your hand, handful after handful, and leave him on his bridle for an hour; then after rubbing, &c. sift another quart of oats, and set them by; then take a loaf of bread that is three days old, at least, made after this manner:

The first bread.

Take three pecks of clean beans, and one peck of fine wheat; mix them together, and grind them into pure meal; then bolt it pretty fine, and knead it up with a sufficient quantity of fresh

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4 Y

barm,

barm, to lighten it, but with as little water as may be, kneading it well in a trough, break it and cover it warm, that it may swell; then knead it over again, and mould it into loaves; break or knead them well, and let them soak soundly; after they are drawn from the oven turn the bottoms upward and let them cool; at three days old you may give him this bread, but not sooner, for nothing is more apt to surfeit than new bread. If it be clammy, so that the horse dislikes it, cut the loaf into thin slices, and lay it abroad in the sieve to dry; then crumbling it small amongst his oats, you may give it him without danger. When you give him this bread, chip it very well, and crumbling it small, mix it with the oats you had sifted and set by; you may give him as much bread as may countervail the quantity of oats, or more if you think fit, and then leave him till eleven o'clock; then give him the same quantity of oats and bread, and let him rest till the afternoon.

At one in the afternoon, if you intend not to give him a heat the next day, feed him with bread and oats as in the forenoon, and so every meal following for that day.

If you intend the next day to give him a heat, then give him only a quart of clean-sifted oats, but no hay, and let him rest till evening. At four o'clock give him the like quantity of clean-sifted

sifted oats; and after he has eaten them, bridle, dress, clothe, saddle, water, air, exercise, and bring him home; order him as before; give him neither hay nor bread among his oats for that night; after he hath stood about an hour upon his bridle, give him another quart of oats, and when he hath eaten them, put a clean muzzle upon him, and let him rest till nine at night; at nine, give him another quart of oats, and when he hath eaten them, put on his muzzle again, toss up his litter, and leave him till next morning.

The muzzle is to keep the horse from eating up his litter, gnawing boards, mud-walls, &c.

They are made sometimes of leather stamped full of holes, but these are unwholesome, being too close and too hot, make a horse sick, and cause him to be restless. The best muzzles for winter or summer, are the net muzzles, made of strong pack-thread, and netted very thick and close in the bottom, and then enlarged upwards to the middle of the horse's head, at which place they are bound about with a tape, and have also a loop and string, whereby they are fastened to the horse's head.

The next morning, come to him before day; if he be standing on his feet (but if he be laid down by no means disturb him) take a quart of well-sifted oats and rub between your hands with some strong ale or beer, but let them not be too moist

for fear of offence, and when he hath eaten them, drefs and faddle him as formerly ; then being ready to go forth, tie his bridle-rein over the top of the rack, so as you draw his head aloft. Take a new-laid egg or two, and breaking them in his mouth, make him swallow them down, washing his mouth after it with a little beer or ale, and so lead him out, not forgetting to provoke him to empty at the door ; then mount and rack him gently to the course, making him By the way to smell at every horse's dung you meet with.

When you are come within a mile or thereabout of the starting-post, dismount, take off his body and breast cloths, and girth on the saddle again. Then sending away your groom with those cloths, and the dry rubbing-cloths, let him stay at the end of the race till you come. This done, rack your horse gently up to the starting-post, if there be any, making him smell at it, so that he may know the beginning and end of the course. There start him roundly and sharply, and give him his heat according to the following directions :

Some few things to be observed in giving of heats.

First, Two in a week are sufficient for any horse.

Secondly, That one of them should always be given on that day of the week on which
your

your horse is to run his match, and also to be the sharpest for increasing his swiftness, the other being only a slow galloping over the course, more to increase wind and cause sweat, than to improve speed. Suppose your match is to be on a Monday, then your heating days must be Mondays and Fridays, and the sharpest heat to be on the Monday. If the day be Tuesday, then Tuesdays and Saturdays. If Wednesday, then Wednesdays and Saturdays, by reason of Sunday. If Thursday, then Thursdays and Mondays, and so of the rest.

Thirdly, You should give no heat, but in case of necessity, in rain or foul weather, but rather defer hours and change days, for it is unwholesome and dangerous. Therefore in case of sudden showers and uncertain weather, you should have for your horse a hood, lined quite through, to keep out the rain; nothing being more dangerous than cold wet falling into the ears and upon the nape of the neck and fillets.

Fourthly, Give your heats, the weather being seasonable, at the break of the day, but by no means in the dark, as being unwholesome and dangerous.

Fifthly, When you begin your heat, start your horse roundly and sharply at near a three-quarters speed, and if it be on the day of the week that his match will fall, then according to his strength, goodnes

goodness of wind, and chearfulness of spirit, run him the whole course through, but do nothing in extremity, or above his wind, but when you find him a little to yield, then draw a little, and give him ease that he may do all with pleasure, and not with anguish. This manner of training will make him delight in his labour. The other heat in each week must be more gentle, the design of it being only to increase wind, and cause sweat; that so the scouring you are to give him after his heat may have some loose grease to work upon and bring away; you should therefore let him go over the course at a slow and gentle gallop; for if both the heats were smart, the horse would not be able to hold out, there being so short an intermission between them for him to rest and recover his vigour; also in coursing you should observe upon what ground he runs, whether up-hill or down-hill, upon smooth or rough ground, wet or dry, a level, or ground somewhat rising, that you may manage him for your advantage.

When you have finished your heat, and gently galloped him up and down, the groom being ready, ride him into some warm place or corner, and with your scraping knife, made of a broken sword-blade, or of a thin piece of old hard oak, scrape off the sweat from every part, buttocks excepted, until you can make no more arise, moving him a little, at times, lest his limbs become stiff,
then

then with dry cloths rub him all over, take off his saddle, and having scraped his back and rubbed it dry, put on his body-cloth and breast-cloth, and girth on the saddle again ; then mount and gallop him gently now and then, wiping his head, neck, and body, as you sit upon his back. Last of all walk him about the fields to cool him, and when you find him begin to dry apace, rack him homeward, sometimes stepping, sometimes galloping. Bring him not to the stable till you find him thoroughly dry, and when you are come to the door, entice him to empty ; then tie him to the rack, and, having prepared it yourself before, or at least one for you against your coming, give him one of these scourings following :

Two excellent scourings for running-horses, either of which may be safely given after a heat, to bring away the foulness of the body.

Take a pint of syrup of roses, or for want of it, a pint of strong honey-water, and dissolve into it cassia, agaric, and myrrh, of each an ounce, shaking them well together in a glass, then being mulled and made warm upon a gentle fire, and the horse newly come from his heat, give it him luke-warm.

The

The other.

Take a pint of Canary, Malaga, or sherry, and pulverizing an ounce of the finest rosin, put it therein ; then add to them six ounces of olive-oil, and two ounces of brown sugar-candy, beaten to powder, with an ounce of rhubarb ; mix all together and give it to the horse.

Method after his scouring.

As soon as you have given it to him, rub his legs well, take off his saddle, and if his body be dry, run slightly over it with a curry-comb, then a brush, and lastly, rub him over well with a dry cloth, and clothe him up warm, throwing also over him, if the weather be cold, a loose blanket ; let him fast full two hours after taking the scouring ; and during that time, go not out of the stable, but keep him awake by making a noise and stirring him now and then.

After he has fasted upon the bridle two hours, take a handful of wheat-ears, and coming to him feel the roots of his ears, and under his clothes, next to his heart, and upon his flanks ; and if any new sweat arise, or coldness, or that his flanks beat, or breast moves fast, then stop giving him any thing, it being a sign there is much foulness
stirred

stirred up, on which the scouring is working with a conquering quality, which makes him a little sick ; so that you should only take off his bridle, put on his collar, toss up his litter, and absent yourself (the stable being dark and quiet) for two hours, which is commonly the longest time sickness will continue. But if you find no such indisposition in him, then give him the ears of wheat, three or four together, and if he eats one handful, give him another, and so until he eats three or four handfuls, but no more ; then drawing his bridle, and rubbing his head well, give him a little bundle of hay, well dusted ; about an hour after, give him a quart of clean oats, with two or three handfuls of split beans among them ; and break into them two or three shives of bread, clean chipped, and there leave him for two or three hours.

In the evening, before you dress him, give him the like quantity of oats, beans, and bread, and when he hath eaten them, bridle, dress, and clothe him ; but you should not stir him abroad that evening, because of the scouring working in his body. After the heat, he must not have any water. When dressed, and has stood two hours on his bridle, give him three pints of clean oats, washed in ale or beer, which will inwardly cool him as if he had drank water, and you are sure he can receive no prejudice by it. After he has

eaten all his washed meat, and rested upon it a little space, you shall at his feeding-times, which have been spoken of before (with oats and split beans, or oats with bread, or altogether, or each of them by itself, according to the likeing of the horse) feed him that night in a plentiful manner, and leave a knob of hay in the rack when you go to bed.

The next day early, first feed, then dress, clothe, saddle, air, water, and bring him home, as at other times; only have a more careful eye at his emptying, and observe how his grease and foulness wasteth. At his feeding times, feed him as was last directed; give but little hay, and keep your heating days, and the preparation the day before, as hath been declared.

Thus you shall spend the second fortnight, in which your horse having received four heats, horseman-like, given to him, with four scourings, there is no doubt but his body will be inwardly clean; you shall therefore, in the next fortnight, order him according to the directions following:

The third fortnight's feeding.

The third fortnight you shall make his bread finer than it was formerly, as thus:

The

The second bread.

Take two pecks of clean beans, and two pecks of fine wheat, and grind them well together, then bolt and knead it up with barm, and make it up as the former bread.

With this bread, having the crust clean cut away, and oats and split beans mixed together, or separately if you think fit, feed your horse at his usual times, as formerly, only with these few differences :

First, You shall not give the heat that falls upon the day of the week the match is to be run upon, so smartly and violently as before, that he be not over-strained, and made sore before the match. You should not, after his heats, give him any scourings, but instead thereof, instantly at the end of his heat, after he is a little cooled and clothed up, and in the same place where you rub him, give him one of the following balls, as big as a hen's egg.

The true recipe of the famous cordial ball, so much esteemed by the generality of every master of a good horse.

Take aniseeds, cummin-seeds, fenugreek-seeds, cardamom-seeds, elecampane-roots, and colts-foot, of each two ounces, beaten and seared very fine ; as also two ounces of the flour of

4 Z 2

brimstone;

brimstone; then take an ounce of Spanish liquorice, and dissolve it on the fire in half a pint of white wine; and add, of the chymical oil of aniseeds, an ounce; of fallad oil, honey, and syrup of sugar (or for want of it molasses) of each half a pint; mix all with the former powders, and with as much fine wheat flour as will bind them together, work them into a stiff paste, which keep in a gallipot, close covered, and give as you find occasion.

If to prevent sickness, anoint a ball all over with fresh butter, and give it him as a pill, in the morning fasting; then ride him a little after it, or let him stand upon his bridle for an hour, feeding and watering according to custom, and do this three or four mornings together. If for a cough, or violent cold, or to fatten a horse, then give him for a week together, or longer, if needfull.

If your horse has an inward rattling, by reason of a cold or rheum, dissolve a ball in a pint of warm water, and it will fatten exceedingly. A ball in the morning before exercise, will prevent his wearying too soon; in the heat of travelling will refresh his spirits, and after it will recover weariness to prevent sickness.

The fourth and last fortnight's feeding.

For the fourth and last fortnight, you should make your bread much finer than either of the former.

The

The last and finest bread.

Take three pecks of fine wheat, and one peck of beans, grind and bolt them through the finest bolter you can get, then kneed it up with new strong ale and barm, beaten together, and the whites of twenty eggs, or more, and no water at all, but instead thereof, a small quantity of new milk; then work it up, bake and order it as the former, and with this bread, having the crust first cut away, clean oats and split beans, all mixed or separate, feed your horse at his ordinary feeding times, as you did the fortnight before, observing the few following directions :

First, You should keep your heating days the first week of this fortnight, but the second, or last week, you should forbear one heat, and not give your horse any five days before his match, but instead thereof, long and strong airings, and water courses to keep him in wind.

This fortnight you need not give him any scouring at all. If morning and evening you burn frankincense in the stable, it is wholesome for the horse, and he will delight therein.

In this fortnight, when you give him any washed meat, wash it not in ale or beer, but in the whites of eggs or muskadeine, being more wholesome, and less pursey. This fortnight give him no hay but what he takes out of your hand after
his

his heats, and that but in little quantity, and clean dusted.

The last week of this fortnight, if he be a foul feeder, you must use the muzzle continually; but if he be a clean feeder, and will touch no litter, then three days before the match is sufficient.

On the morning before your match, feed well before and after watering and airing, and water as at other times before noon, and after noon diminish his portion of meat a little.

Before and after evening airing, feed as at noon, and water as at other times, but be sure to come home before sun-set.

This evening you are to trim and shoe your horse, taking care not to hinder his feeding, nor to interrupt his rest; for we have heard horsemen say, that when they had shod their horses with light shoes, or plates, the night before their course, they have taken such notice thereof, that they would neither eat what was given them, nor lie down to take any rest all the night following. But a horse must be old, and long experienced in this exercise, to make such subtle observations. However, we advise that things of necessity be done on this day, rather than upon the morning of the course, because on that morning he should have nothing to trouble him.

Late at night, feed as you did in the evening, and give him what he likes best, according to his stomach,

Stomach, only as little bread and beans as possible, then putting on his muzzle, and tossing up his litter, leave him quiet till next morning.

The next morning, being that of the match day, come to him very early, take off his muzzle, rub his head well, and give him a quantity of oats, washed in muskadine; if he will not eat them, or in the whites of eggs, but refuses them both, then try him with fine dressed oats, dry, and mixed with a little wheat. After he hath eaten them, if he be a slow emptier, walk him abroad, and in the places where he used to empty, there entice him, which as soon as you have done, bring him home, put on his muzzle, and let him rest until you have warning to make ready. But if he be a free emptier, you need not stir him, but let him lie quiet.

When you have warning to make ready, take off his muzzle, and having washed his snaffle in a little ale or wine, bridle him up; but before you do that, if you think him too empty, give him three or four mouthfuls of the washed meat last spoken of; then bridle up, and dress him; afterwards, pitching your saddle and girths with shoemaker's wax, set it on his back, and girth it gently, so that he may only feel the girths, but have no straitness. Then lay a clean sheet over the saddle, and over it his ordinary cloths, then
his

his body-cloth and breast-cloth, and wisp him round with soft wisps ; and being ready to draw out, give him half a pint of the best sack in a horn, and lead him away.

In all your leading, use gentle and calm motions, suffering him to smell upon any dung, and where you find rushes, long grass, heath, or the like, walk in, and entice him to urine ; but if you find no such help, then in some certain place where you lead him, and especially near to the place you are to mount, and having accustomed him to it before, break some of the straw where-with he is wisped, under him, and thus entice him, if you can, to stale or urine, and if any white or thick foam or froth arise about his mouth, wipe it away with a clean handkerchief, and carrying a bottle of clean water about you, wash his mouth now and then with it.

When you are come to the place of starting, before you unclothe the horse, rub and chafe his legs well, pick his feet, and wash his mouth with water.

After you have gone through the above preparations, mount his rider, and having adjusted his stirrups, let him walk him softly to the starting post, and there starting fair, let him run him to the best advantage.

Some

Some useful observations while a horse is preparing for a match.

If his dung be neither so thin that it will run, nor so thick but that it will a little flatten on the ground, and of a pale yellow colour, then is the horse clean, and well fed. If in round pellets, and blackish or brown, it shews inward heat; if greasy, it shews foulness; if red and hard, then he hath had too strong heats, and costiveness will follow. If it be pale and loose, it shews inward coldness of body, or too moist feeding.

If his urine be of a pale yellowish colour, rather thick, and of a strong smell, it shews health. If it be of a high complexion, clean and transparent, like old beer, then he is inflamed in his body, having taken some surfeit. If it be like blood, or inclining to blood, he hath been over rode, or rode too early after winter grafs. If green, it shews a consumption of the body. If with bloody streaks, an ulcer in the kidney; if black, thick, and cloudy, it portends death.

If he sweat standing still in the stable, or walking a foot-pace, or the like; or if his sweat be white and frothy, like soap-suds, then is he foul, and wants exercise; but if the sweat be black, and as it were only water thrown on him, then he is lusty, and in good case.

Although we have given no directions for watering in the evening, after a heat, yet you may in the three last fortnights (finding your horse clean) somewhat late at night give him a reasonable quantity of water, made milk-warm, and fasting about an hour after it. If the weather be unseasonable, you should at your watering-hours, give him in the house warm water, throwing into it a handful of wheat, bran, or oat-mcal, the latter is the best.



HINTS

H I N T S

T O T H E

P U R C H A S E R S

O F

H O R S E S.

A Gentleman intending to purchase a horse, should recollect both the certain and probable uses for which he designs him, if he would suit his choice to his purpose. In this country in particular, so much attention is paid to the propagation of horses, that we may fairly be said to possess a separated breed, adapted, as it were, peculiarly to each of the various services to which mankind has found means to train this incomparable animal.

External appearances are generally so just to his real properties, that a judicious observer on sound principles, will seldom, if ever, be materially disappointed.

Universality of assent, proves the justice of this position. In practical application it is carried, perhaps, to an extravagant length. Few men will hesitate to pronounce a small neat-limbed horse to be of the Spanish breed; one of the hook-nose, to be of the Neapolitan; the neat head and sleek body, to be of the Barbary; and a strong well-jointed one, to be of what is called the true English breed. And as they are severally regarded in these lights, will dispose them into the manage, the hunt, the swift draft, and the heavy. They tell us that colour varies with constitution; and where fancy does not sway, the judgment will determine as to the good qualities of a horse, and the bad ones, by the colour of his coat.

For instance, a coal-black, without any mixture of other coloured hair, is subject to choler, is obnoxious to pestilence, fevers, inflammations of the liver, and other hot diseases; but are fierce and intrepid in their nature, and are best adapted for war, &c. &c.

A horse of a bright or dark-bay colour, with an open chearful countenance, is esteemed fit for running, hunting, or travelling; they are also sanguinary and spirited in their deportment. Of the same temperament are the white, flanked with a mixture of hair of a silver or black colour, with a white star, white foot, &c. The diseases these
horses

horses are subject to, are (they say) consumptions and leprosy. A horse that is pied, or pie-bald, pale yellow, or cream-coloured, is phlegmatic, and fittest for the cart or mill; they are not to be chosen for swiftness, or should some happen to be swift, they cannot hold out long. They are subject to leanness and the staggers, coughs, watery humours, and the like.

The dark-bay, with long white hair, russet, ash-colour, chesnut, grey, or mouse-coloured, are subject to inflammations, spleen, dropfies, phrenfies, oppressions of the heart, and pains in the stomach. Where a horse is found with a mixture of all these colours, which very rarely happens, he is said to be unstable in his constitution, and all the diseases ascribed separately to each colour, will predominate by turns in him.

Buyers and sellers are actuated as we have now stated it.

To chuse a riding-horse for ease and gentleness, he must be perfect in ambling, and observe in the movement of his legs that he performs it equally smooth and nimbly; for if he tread false, he will be both uneasy and unsafe.

The trot, or, as some call it, the lofty pace, most properly belongs to horses. However, there are many riding horses that are gently easy in their trot, and such seldom fail to gallop well. Observe that the horse you are about to purchase,
has

has not got the swift cut in his gallop, and that he does not cross one foot over another ; that he leads with his off fore-foot, and smoothly and regularly follows with the rest.

As many defects in horses may be artfully concealed, we shall just hint to the reader the general method of examining horses at sales, and those precautions which are invariably observed by those who have had the best claim to the title of connoisseurs in horses ; and with this last, shall finish this subject.

Having first learned what you can of the horse's pedigree and breed that you intend to purchase, let him be brought out before you, after having been thoroughly rubbed down ; then cause the saddle and bridle to be taken off, and a halter put upon his head : stand then exactly before him, and observing his countenance, take notice that it be open, sprightly, and chearful ; mind that he is well proportioned, and stands well on his legs ; that his ears be small, thin, taper, and terminating in a point. These are indications of a free, tractable, and mettled horse. If the eyes be lively, black, brown, or protuberant ; if they move with quick motion, not languid ; if the black of the eye nearly fills the fleshy orb, and but a little of the whites appear, they are signs of a healthy good horse ; but if his brows are contracted, his looks fullen, dejected, melancholy ;
his

his ears thick, flabby, lolling, &c. these are signs of his being sickly, untractable, and morose. When the cheeks are thin, the windpipe full, large, smooth, and free from lumps and kernels; when the jaws stand even, and the teeth shut like a box; these are all good signs.

See that from his elbows to his fore-knees, he be well proportioned, straight, well jointed, and free from scabs, scars, and blotches. These last are the fore-runners of cancerous ulcers.

The properties of a good hoof are, that it should be black and round, for a long whitish hoof denotes the horse to be subject to foundering.

The hair should lie smooth on the corner of the hoof, and careful inspection ought to be made that no bony excrescences appear about the coronet, these being presages of the ring-bone. When a view is taken of a horse's posteriors, or hinder parts, the person should stand at some distance, where he may more advantageously see whether the hips be broad, round, smooth, and even; the thigh thick and well fleshed; the joint below the thigh should be critically examined, and if chops or sores appear, they presage falanders; if a swelling, with a full and protuberant vein, the blood-spavin.

Thus have we completed a practical Essay on the Diseases by which Horses are liable to be affected, and proposed adequate Remedies: our aim was to supersede quackery, and to bring experimental

perimental farriery into practice and repute. We may, as we now do, affirm, that we have not hazarded a single prescription which is not efficacious, and on which we would not stake our reputation. When we have said this, it will be believed, that study and practice warrant our assertion, and that we have therefore a right to that emolumentary return which an indulgent public never with-holds from the deserving.



ON THE
V I C E S
O F
H O R S E S.

DEALERS in horses use the term *vices*, to express certain faulty habits or customs in those creatures, which render them troublesome to the rider, and are never to be worn off, but by attention to the regular methods.

The following are the tricks generally understood as vices by dealers, and their methods of preventing, correcting, and curing them:

First, If a horse carry his head or neck awry, strike him twice or thrice with the spur on the

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contrary

contrary side; but if he be very stiff-necked on the right side and very plying or bending on the left, the rider is to hold the right rein shorter than the other, and give him sudden checks every time he inclines that way, having a sharp wire fastened in the reins, that striking in his neck he may be compelled to hold it straight; but in this, care must be always taken to check him upwards, for otherwise he will get a habit of ducking his head, which will prove very troublesome.

Secondly, If a horse is apt to shake his head and ears upon the least occasion, or move his ears when he is going to kick or bite, or cast his rider, the way of curing this, is to strike him on the head with a wand, as soon as he shews the first attempt to it; and, at the instant of striking him, he is to be checked with the bridle, and be struck with the spur on the contrary side; this will put him out of his pace, and he is then to be stopped, that he may have leisure to understand the rider's meaning. Every time that he starts or winces, which are signals that he is going to bite, or to strike with his heels, the same is to be done, and he will, by degrees, be broke of these habits.

Thirdly,

Thirdly, If a horse is subject to ducking down his head frequently, the rider must, every time he is guilty of it, check him suddenly with his bridle, and at the same time strike him with the spurs, in order to make him sensible of his fault. If he be standing, he is thus to be made to bring his head in the right place as he stands; and when he does so, he is to be cherished, that he may understand the rider's meaning, which, in time, he will certainly do.

Fourthly, If a horse be skittish, and apt to start, so that the rider is never free from danger, while on his back, the cause of the malady is first to be carefully enquired into; if it be found to proceed from a weak sight, which represents objects to him other than they really are; the method of curing him is, every time he does it, to give him leisure to view the things, and see what they really are; he must have time to view them well, and then be rid gently up to them. If, on the contrary, his skittiness depends on his being naturally careful and alarmed at every noise, he is to be cured of it by the inuring of him to loud noises of many kinds, as firing of guns, drums, trumpets, and the like;

like; and he will, in time, come to take delight in what he was before afraid of.

Fifthly, If a horse be restive, and refuse to go forward, the rider is to pull him backward, and this will often occasion his going forward; this is using his own fault as a means of reclaiming him. The rider is first cautiously to find whether this vice proceeds from real stubbornness, or from faintness; if from the latter, there is no remedy but rest; but if actual stubbornness be the fault, the whip and spur, well employed, and persisted in, will at length be found a certain cure.

Sixthly, If a horse rear up on end, that is, if he rises so high before as to endanger his coming over the rider, the horseman must give him the bridle, and bear forwards with his whole weight. As he is going down, he should have the spur given him very roundly; but this must by no means be done as he is rising, for then it will make him rise higher, and probably come over.

Seventhly, If a horse be subject to lie down in the water, or upon the ground, there is no better remedy than a pair of sharp spurs resolutely applied

plied. But there is some caution to be used in the applying of them, for bad horsemen generally are the occasion of the faults in horses, by correcting them out of due time.

The proper moment of spurring is just when he is going to lie down ; but when this has diverted him from the thought of it, he is not immediately to be spurred again. For the doing this frightens the creature, and puts him into confusion to that degree, that he at length becomes restive, and thus one fault is only changed for another, and that perhaps a worse.

Eighthly, If a horse be apt to run away, very cautious means must be used to break him to it. The rider must be gentle, both with a slack curb, and keeping an easy bridle-hand. He is first to be walked without stopping him ; but only staying him, by degrees, with a steady, not a violent hand, always cherishing him when he obeys ; when he is thus made very manageable in his walk, he is put to his trot, and finally to his gallop ; and from these he is to be brought into a walk again, always by degrees, and staying him with a steady hand. By using this method from
time

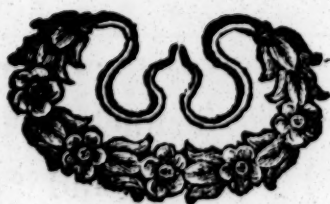
time to time, with judgment and patience, it is probable he may at length be cured.

Ninthly, If a horse is apt to fly out violently, it is certain, that the more the bridle-rein is pulled, and the more he is hurt by tugging the curb, the faster he will run ; the best method is therefore, if there be field-room enough, to let him go, as soon as he is going, by slackening the bridle, and giving him the spur continually and sharply, till he slacken of his own accord. Thus by degrees, he will find that himself is the sufferer, by all his flights, and he will then leave them off, though he could be never broke of them any way else.

Tenthly, Some horses will not endure the spurs when they are given them, nor ever go forwards ; but fastening themselves to them, they will strike out and go back ; and if they are pressed more hard, they will fall to staling without ever going out of the place. If the horse who has this vice be a gelding, it will prove very difficult to cure him of it. A stone-horse or a mare are much easier cured ; but even these will be trying at it again afterwards ; and if ever they
get

get the better of their rider, they will not fail to keep it up in this particular.

Every horse, of whatever kind, that has this fault of cleaving to the spurs, as the jockies call it, and not going forwards with them, is to be rejected, in the buying for a gentleman's riding, for it is a sign of a restive nature, and is a fault generally accompanied with many others.



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S U P P L E M E N T.

IN order to instruct, and give the reader a true knowledge of physic in the practice of farriery, the following is a list of some of the most useful drugs mentioned in this treatise, with a short account of their natures, qualities, and medicinal virtues :

Aloes.

This proves an highly-powerful and efficacious medicine; since, by its balsamic, corroborative, and lenitive virtues, it absterges and eliminates the viscid humours, corrects such as are vitiated, and, corroborating the relaxed tone of the stomach, removes the spasms and flatulences of the *prima via*, and is of great account among surgeons, in the tincture of myrrh, for external intentions. There is scarce any one drug of more universal use in medicine than this.

Diaphoretic antimony.

This medicine causes perspiration, and is of great service in fevers, pestilential disorders, and also for all eruptions on the skin, being a great cleanser and sweetener of the blood, &c. Not-

withstanding the expence of making this medicine genuine is but little, yet the avarice of some chymists among us, order common whiten to be mixed with it, which renders their profits in the sale of it much greater.

Butter of antimony.

This is an immediate caustic, causing an eschar very quickly, which separates the foul flesh in a short space of time. Its general use is for cankered feet.

Aqua-fortis.

This is used in medicine, only as a menstruum in other preparations, but its nature and quality are much the same with the butter of antimony, and is used for horses as a caustic, and is of service in loosening a core of rotten flesh.

Crude antimony.

This is a heavy metalline substance, compacted, as it were, of long shining needles, before it is made into a powder. It is given as a diaphoretic and deobstruent, and is an excellent alterative in the scabies and mange in horses and cattle.

Alum.

It is drying, astringent, and incrassating, and when melted with a due proportion of dragons-blood,

blood, is an excellent styptic either for man or horse.

Aniseed

Promotes appetite, and affords relief in phlegmatic and cold disorders of the stomach and intestines.

Balsam of Peru.

The best sort of this medicine is of an admirable fragrantcy; it heals, dries, and discusses, and is a great strengthener and warmer of the nerves, and is serviceable in cuts or green wounds.

Balsam of sulphur, with oil of turpentine.

This is an excellent medicine for all disorders of the breast, likewise for ulcerations and obstructions of the urinary passages. It is highly recommended to the human species for expelling and dissolving the stone.

Bay berries.

These are the fruit of an aromatic oily-leaved tree, very commonly known; they are heating, drying, emollient, and resolvent, and are principally ordered to provoke urine.

Benjamin.

This is of a warming, drying, discussing, dissolving, and purifying nature, resists putrefaction, and is good against diseases of the lungs and kidneys.

Yellow basilicon.

This is an ointment used to incarn wounds, and has the reputation of a very eminent person, Mesue, who is ascribed as its author,

Bole-armenic.

It is ponderous, pingueous, and of a styptic taste ; that which is called the best sort of it, is dug out of the mines in Turkey. It is very rare that sort is sold in the shops, for what we generally get from the druggists, is a sort that comes from Spain and Normandy, and is thought to be little different. It is an alexipharmic, and corrects acidities in the blood ; it is also astringent in some degree, and for that reason is used in fluxions of humours ; when applied externally, it is of a drying quality, and induces cicatrices on wounds.

Bears-foot.

The parts used in medicine are the root and leaves ; the root has the same virtue with that of the black hellebore, and purges the lower belly.

Farriers

Farriers and grafiers put a great confidence in this herb againſt the contagious diſtempers among their horſes and horned cattle.

Birthwort.

The powder of this root, and its extract with ſpirit of wine, are uſed in liniments deſigned for cleaning inveterate, ſordid, and malignant ulcers.

Cream of tartar.

The virtues of this medicine are cooling, gently carthartic, and, as moſt ſaline purges, it paſſes off pretty much by urine.

Calomel.

This is a great ſweetener of the blood and juices, and may be given to horſes in half-ounce doſes.

Camomile

Digeſts, relaxes, mollifies, and alleviates pain; is a fine diuretic, and is uſed in the compoſition of clyſters.

Cloves.

The beer or wine wherein they are boiled, is of uſe in nervous diſorders among horſes.

Camphor

Camphor.

This is a pellucid gum, which does not flow from the tree, but is obtained out of its wood by a particular way of sublimation, and is brought into Europe from China, or the island of Borneo, in the East-Indies ; when a diaphoresis is to be encouraged, nothing will sooner raise one, and is of a singular efficacy in removing external inflammations, whether of the eyes or otherwise.

Caraway-seeds

Are one of the four hot seeds ; they are like the rest, stomatic.

Cardamoms

Are seeds that aid digestion, expel wind, and are excellent in all disorders incident to the head.

Cummin-feed

Is carminative, and is of infinite service in healing inflammations of the kidneys.

Cinnamon

Is an aromatic bark, and is of a stimulating and corroborative quality.

Diapente

Diapente

Is a preparation of five ingredients ; it opens obstructions of the intestines, &c.

Diafscordium

Is an astringent.

Dragons-blood.

The weeping of a tree something like a cherry-tree, as it bears fruit not unlike a cherry ; it is said the skin of the tree when pulled off, resembles a dragon ; this drug is experienced to be of an agglutinating quality. It is a powerful drier, an astringent, and has a sharp diuretic virtue.

Diagridium

Is a brisk cathartic, and a strong diuretic ; it is therefore given in other preparations to purge water.

Daucus-seed

Is called carrot-seed ; it is a diuretic, and an excellent remedy for the strangury in horses or cattle.

Elicampane-root.

It is very warm, opening, and deterfive ; it cleanses the lungs from tartarous and viscid obstructions ;

fructions; it also opens the urinary ducts, and when blended with brimstone and hellebore-root, is of great service in cutaneous disorders.

Euphorbium

Is a gummy resinous substance, the produce of Africa, and is used in surgery for cleansing foul ulcers, and exfoliating of carious bones.

Japan earth.

It is of a dark purple colour, very austere upon the palate. It is famous for stopping fluxes of the belly, and is good in catarrhs.

Ægyptiacum.

This is an ointment that is applied to cleanse foul ulcers, and to keep down fungous flesh.

Fenugreek-seeds,

Administered internally, are softening, relaxing, and healing; and for external application to tumours, they are ripening, discussing, and digesting, and seldom omitted in cataplasms.

Frankincense, or olibanum.

When externally applied, it discusses catarrhs, incarns hollow ulcers, and brings them to a cicatrix; it conglutinates recent wounds, is an excellent medicine for chilblains, and mitigates malignant

malignant ulcers, not only of the arms, but also of other parts.

Fennel.

The root, leaves, and seeds, are used; the root is one of the five aperient roots, and the seeds are classed among the great carminative seeds, and provoke urine.

Ginger.

This is a root that is cultivated in the West-Indies, and generally brought over dry; it is very hot and penetrating; and when powdered and mixed with aloes, &c. will prevent the phlegm from griping.

Gentian-root.

No other part of this plant is used in medicine; it is extremely bitter, warms the stomach, and causes digestion; it is alexipharmic, and a great antidote against poisons, as it wonderfully promotes sensible and insensible perspiration.

Garlic.

Only the root of this is used in medicine; it is very aperient and discussive, being loaded with very subtile and volatile parts, and provokes urine.

Guaiacum.

This gum is much of the same virtue as the wood, though more efficacious, causing insensible perspiration; upon that account it is good in such cutaneous cases as proceed from obstructions of the perspirable matter in the miliary glands.

Gum-dragant.

It easily dissolves in any aqueous menstruum, to which it will give the consistence of syrup; it is moistening, lenient, emplastic; corrects acrimony, and incrassates. Five or six grains for a man; but five or six drachms of it dissolved in milk, will effectually cure a horse, or cattle in voiding blood by urine.

Honey.

The medicinal virtues of this are many, in so much that there is no author from the most ancient times, but makes mention of it, especially from the divine Hippocrates down to this age. It wonderfully promotes expectoration; there is no disorder from phlegm, or any thing which is the produce of a cold constitution, which it is not of service in; it is also made use of in surgery, to cleanse foul ulcers.

Hartshorn

Hartshorn, calcined.

This is a very valuable medicine among the preparations of powders for the contagious disorder in cattle and horses; it extremely rouses the spirits, and is of infinite service in unmerciful fevers, which burn up the vitals, and turn the constitution quite out of frame. The powder of this being administered as is set forth in this Treatise, will tenderly cherish it into its former vigour again. It supplies the parched fibres with fresh fluid suited to their exigencies, and helps to keep on the main springs and motions of life, which otherwise might languish and stand still.

Hellebore-root,

Is the predominant ingredient for the cure of any scorbutic disorder, by applying it externally.

Jalap-root.

This medicine powerfully purges and carries off all scirrhus humours, and needs not any other medicine to promote its operation.

Juniper-berries,

Are much used for expelling wind, removing obstructions, and making a free passage for the urine.

Long-pepper,

Is accounted alexipharmic; expels wind, and promotes digestion,

Liquorice.

The roots are pectoral, and are of great use in disorders of the lungs, &c.

Quick-lime,

Is of use in drying up old ulcers, &c.

The seed of common flax, or linseed-oil.

They are cooling, softening, and healing; and the oil mitigates the pain of rheumy coughs, and is an excellent balsamic medicine administered with others.

Lunar-caustic.

This is made of pure silver in a sand-heat, with twice its weight of aqua-fortis; it is a most powerful caustery, and by frequently touching foul fungous ulcers with it, perfectly completes a cure.

Mustard.

The seeds attenuate gross viscid humours, and are heating, moderately moistening, emollient, paregoric, and very diuretic.

Myrrh.

Myrrh.

It is of a heating, drying, opening, and subastringent nature; when it is administered internally, it is said to attenuate, maturate, discuss, and resist putrification; and when externally applied, it cleanses and cures wounds and ulcers.

White corrosive mercury.

It consumes warts, and obstinate callosities in ulcers.

Salt of nitre.

It removes all gross obstructions, and opens the pores of the skin through which the hot and fiery particles are exhaled, and stimulates the ducts and glands to a more copious secretion of lymph, moistens the body, relaxes and softens parts spasmodically contracted.

Sweet spirit of nitre,

Restores the appetite, promotes sweat, and provokes urine.

Oil of aniseed,

Is a carminative medicine; it expels flatulencies in the intestines, and is good, when given in
purgative

purgative medicines, to prevent their gripings, &c.

Oil of castor

Is given as a purge with success, in all nervous disorders.

Oil of Turpentine,

When blended with other medicines, is of service in extirpating swellings and strains, and is of service in wounds and bruises.

Oxycroceum

Is a plaister, and is a fine resolvent; it fortifies the nerves and muscles, and relieves pain.

Oil of vitriol

Serves as a menstruum in some metalline preparations; it is extremely caustic, therefore it is necessary to keep it under a wax or glass stopple.

Oil of Peter.

It is much commended in many external applications, such as pains in the joints, occasioned by strains or otherwise.

Train oil,

Answers much the same purpose, only not quite of so hot a nature.

Amber,

Oil of amber,

When applied externally, restores contracted paralytic torpid limbs ; it is a most excellent medicine blended with others, for an embrocation.

Onions,

When roasted, and externally applied, soften hard tumours ; and if applied with salt, will cure a burn, before the blister rises.

Parsley.

Its roots are hardly to be distinguished from the fennel, and are of the same services in medicine as the fennel-root, for cleansing the viscera, particularly the kidneys, and are one of the five opening roots.

Peruvian bark,

Promotes perspiration, is of a bitter quality, and is universally allowed to be a proper remedy for fevers.

Burgundy pitch,

Is a very drawing and sticking medicine ; it is therefore used with other ingredients, for a hot charge, or strengthening plaister.

Powder

Powder of red precipitate.

It is a good escharotic, and much used for that purpose in basilicon, and other dressings.

Matthew's pill.

Is a powerful opiate.

Quicksilver,

When it is judiciously administered, is a most excellent medicine; it opens the pores, small vessels, and ducts of the glands; resolves obstructed humours in the remotest parts of the body, and performs wonders in cutaneous pustules, scabs, and other eruptions of the skin.

Rosemary.

It is of use in all nervous complaints, especially such as arise from too great moisture and cold, as they are hot and drying.

Rue.

It is alexipharmic, and resists all kinds of poisons and malignities; it is also of service in obstructions in the urethra and bowels.

*Salt*

Salt of vitriol.

This is a very aperitive and cleansing medicine.

Saffron.

It is possessed of aromatic stimulating qualities; it purges the lungs from viscid phlegm, is a good pectoral, and greatly exhilarates the animal spirits.

Sulphur.

This medicine is administered internally, to repel gross humours, and purify the blood.

Sope.

Castile sope is of a very penetrating, warm, cleansing nature, and deterges the most minute passages, and is a powerful diuretic.

Salt-petre

Is cooling, and a cleanser of the urinary ducts, being a great diuretic.

Sal-ammoniac.

It preserves all animal substances from putrefaction, and is the noblest aperient, attenuant, resolvent, sternutatory, diaphoretic, sudorific, and diuretic.

Sugar of lead

Is an astringent styptic.

Salt of wormwood

Promotes appetite, and helps digestion.

Salt of tartar

Is of service for all diseases which are seated in the nerves, as palsies, apoplexies, epilepsies, &c.

Steel prepared

Is a great astringent.

Spermaceti

Is an excellent balsamic in many inward disorders.

Syrup

Syrup of buckthorn,

Is a brisk cathartic, and carries off watery humours.

Spirit of sal ammoniac

Is of service when externally applied to paralytic limbs, and all nervous complaints where there is pain.

Storax

Is an excellent pectoral, being of great service in coughs, and disorders of the lungs, &c.

Snake-root

Is used with success in raising a diaphoresis; so that its warmth occasions its use in nervous and paralytic complaints.

Tutty prepared,

Dries acrimonious humours of the eyes, is applied with success in curing ulcers on the cornea and eye-lids; it also carries off fluxes of fistulous humours in the eyes.

Turmeric

Opens the obstructions of the intestines, and provokes urine.

Barbadoes-tar.

It has a strong scent, and not unlike the common tar; it is recommended to be given in obstinate tickling coughs, and when applied outwardly, is of service in burns, scalds, and inflammations; and among the people in the West-Indies, it is in great vogue for almost every disorder, both internal and external; but it is our opinion that the common tar is endued with the same virtues.

Emetic tartar.

It operates by stool, and is proper in all hypochondriacal melancholy; it cannot fail of doing good, by accelerating the motions of the fluids, and rousing the spirits.

Venice-treacle

Is a strong opiate.

Tincture

Tincture of castor

Is of use in a lethargy, apoplexy, epilepsy, palsy, vertigo, tremor of the limbs, defluxions on the joints, &c.

Turpentine

Is very detergent, and therefore prescribed in all suspicions of abscesses and ulcerations.

Roman Vitriol

Being an acid salt, is an excellent styptic.

White Vitriol

Is principally used to allay inflammations of the eyes, &c.

Vitriol of tartar

Is a strengthener of the intestines, by its astringency.

Verdegris

Is applied externally to keep down fungous flesh, and is of great service in drying up ulcers.

Vinegar

Is of an acid, resolvent, and refrigerating quality.

Wormwood

Wormwood

Promotes an appetite, and helps digestion.

White of an egg.

It is of a glutinous binding quality, and is mixed with bole-armenic, &c. to defend and cool any part that may be strained.

Mellepides, or Wood-lice.

They are diuretic, absterfive, and of service in all disorders of the reins ; and are also a principal medicine in the jaundice, and abound with a nitrous salt, which derives from what they feed on.



A D D E N D A.

THAT this work may be as extensively useful and interesting as possible, we conceived it might not be unacceptable to our readers to be presented with the

SUBSTANCE OF THE LAST ACT

R E L A T I V E T O

POST-HORSES, AND HORSES LET TO HIRE.

THE last Act, which commenced on the first of August, 1785, repeals all previous Acts on that subject, and then proceeds to this effect:—That after the said first of August, there shall be levied and collected throughout the kingdom, the several rates and duties following; that is to say,

Every

Every post-master, inn-keeper, &c. who shall let horses to hire for travelling post, shall pay for an annual licence, 5s.

The said duties shall be under the management of the Commissioners appointed for stamp-duties, any two of whom (or persons authorised by them) may grant licences for letting out horses to hire, to all persons who shall apply for them; which licence must be renewed ten days previous to the expiration of the year for which it was granted.

Persons letting out horses to travel post, &c. without a licence, shall forfeit 10l.

No person shall keep more than one inn, or place for letting horses, by virtue of one licence, on penalty of 20l.

Licensed inn-keepers, stable-keepers, &c. shall cause the words, LICENSED TO LET POST-HORSES, to be painted on the fronts of their houses, &c. before they let horses to hire, on penalty of 5l.

Commissioners of stamp-duties shall deliver to every person taking out a licence, printed or written papers, entit'ed, "*Stamp-Office Weekly Accounts*," in which shall be inserted the day of the week, and blanks left for the number of horses and miles, and name of the town and place

to which such horses shall be hired to go; and also for the day of the month, and the names of the postillions or drivers employed.

Tickets unaccounted for, shall be paid for after the rate of 1s. 9d. for each horse, according to the number of horses expressed by the figures on the tickets, and in the receipts given by such post-master, &c. for the same.

Post-masters, &c. letting out horses to travel post, or by day, shall receive (for the use of his Majesty) of the persons hiring the same, three half-pence for every mile such horse is to travel; or 1s. 9d. for each horse, when the distance cannot be ascertained; and shall deliver to them stamp-office tickets, properly filled up.

Travellers shall deliver their tickets at the first turnpike, &c. they shall pass through.

Day-tickets to be delivered in like manner; in return for which, the gate-keeper shall give an exchange-ticket, which shall be shewn at every turnpike during that day.

No traveller shall pay for more miles than shall be expressed upon his ticket. If any inn-keeper, &c. shall insert in such ticket, the name of any other town or place than that to which the horses shall be hired to go, or shall fill up a

less number of miles than is charged to such traveller, shall forfeit 10l. and the commissioners shall, if they think fit, after the conviction of the offender, refuse to grant him any licence in future.

Horses hired for any less time than two days, shall be deemed to be hired for one day.

No post-master, &c. at whose house any traveller shall change horses, shall let them any otherwise than by the mile, or stage.

Where inn-keepers cannot furnish horses to travellers, they are to give them a fresh ticket, properly filled up, &c.

This act not to extend to horses used in hackney coaches, &c.

All horses hired by the mile, or stage, shall be deemed liable to travel post.

Persons counterfeiting or offering any forged ticket, note, or certificate, shall forfeit fifty-pounds.

Persons residing in London or Westminster, or within five miles thereof, or in the bills of mortality, shall deliver their accounts at the stamp-office the first Tuesday or Wednesday in every month.

Alb

All persons purchasing a saddle or coach-horse, must enter him, and pay the duty within ten days of the purchase, if he uses him, or forfeit 20l.

Persons aggrieved, may appeal to the quarter sessions.

Duties on running-horses.

For every horse entered to start, or run for any plate, prize, sum of money, or other thing, shall be paid a duty of 2l. 2s. And the owner of every such horse shall previously pay the sum of 2l. 2s. as the duty for one year, to the clerk of the course, or other person authorised to make the entry, which if he shall neglect or refuse to pay, he shall forfeit 20l. The winning horse pays double duty.

And the clerk of the course shall, within fourteen days after the receipt thereof, give an account of, and pay the same to the distributor of stamps, on pain of 100l. for not delivering such account, and double the money due at the time of such default, and the distributor shall make him an allowance of 1s. in the pound for all monies accounted for and paid by him.

F I N I S.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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